



Operating Instructions and Parts Manual 14- & 20-inch Metalworking Band Saws

Models 8014FW and 8020FW



Model 8014FW



Model 8020FW

WMH TOOL GROUP

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Part No. M-8014FW

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This manual has been prepared for the owner and operators of a Wilton 8014FW or 8020FW Band Saw. Its purpose, aside from machine operation, is to promote safety using accepted operating and maintenance procedures. To obtain maximum life and efficiency from your band saw and to aid in using it safely, please read this manual thoroughly and follow the instructions carefully.

Warranty and Service

WMH Tool Group warrants every product it sells. If one of our tools needs service or repair, one of our Authorized Repair Stations located throughout the United States can provide quick service or information.

In most cases, a WMH Tool Group Repair Station can assist in authorizing repair work, obtaining parts, or perform routine or major maintenance repair on your Wilton product.

For the name of an Authorized Repair Station in your area, please call 1-800-274-6848, or visit our web site at www.wmhtoolgroup.com

More Information

Remember, WMH Tool Group is consistently adding new products to the line. For complete, up-to-date product information, check with your local WMH Tool Group distributor, or visit our web site at www.wmhtoolgroup.com

WMH Tool Group Warranty

WMH Tool Group makes every effort to assure that its products meet high quality and durability standards and warrants to the original retail consumer/purchaser of our products that each product be free from defects in materials and workmanship as follows: 1 YEAR LIMITED WARRANTY ON ALL PRODUCTS UNLESS SPECIFIED OTHERWISE. This Warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence or accidents, normal wear-and-tear, repair or alterations outside our facilities, or to a lack of maintenance.

WMH TOOL GROUP LIMITS ALL IMPLIED WARRANTIES TO THE PERIOD SPECIFIED ABOVE, BEGINNING FROM THE DATE THE PRODUCT WAS PURCHASED AT RETAIL. EXCEPT AS STATED HEREIN, ANY IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS ARE EXCLUDED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG THE IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. IN NO EVENT SHALL WMH TOOL GROUP BE LIABLE FOR DEATH, INJURIES TO PERSONS OR PROPERTY, OR FOR INCIDENTAL, CONTINGENT, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OF OUR PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

To take advantage of this warranty, the product or part must be returned for examination, postage prepaid, to an Authorized Repair Station designated by our office. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection discloses a defect, we will either repair or replace the product at our discretion, or refund the purchase price if we cannot readily and quickly provide a repair or replacement. We will return the repaired product or replacement at WMH Tool Group's expense, but if it is determined there is no defect, or that the defect resulted from causes not within the scope of WMH Tool Group's warranty, then the user must bear the cost of storing and returning the product. This warranty gives you specific legal rights; you may also have other rights, which vary from state to state.

WMH Tool Group sells through distributors only. Members of the WMH Tool Group reserve the right to effect at any time, without prior notice, alterations to parts, fittings and accessory equipment, which they may deem necessary for any reason whatsoever.

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Warnings

1. Read and understand the entire owners manual before attempting assembly or operation.
2. Read and understand the warnings posted on the machine and in this manual. Failure to comply with all of these warnings may cause serious injury.
3. Replace the warning labels if they become obscured or removed.
4. This band saw is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a band saw, do not use until proper training and knowledge have been obtained.
5. Do not use this band saw for other than its intended use. If used for other purposes, WMH Tool Group disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.
6. Always wear approved safety glasses/face shields while using this band saw. Everyday eyeglasses only have impact resistant lenses; they are not safety glasses.
7. Before operating this band saw, remove tie, rings, watches and other jewelry, and roll sleeves up past the elbows. Remove all loose clothing and confine long hair. Non-slip footwear or anti-skid floor strips are recommended. Do **not** wear gloves.
8. Wear ear protectors (plugs or muffs) during extended periods of operation.
9. Some dust created by power sanding, sawing, grinding, drilling and other construction activities contain chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
 - Lead from lead based paint.
 - Crystalline silica from bricks, cement and other masonry products.
 - Arsenic and chromium from chemically treated lumber.

Your risk of exposure varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area and work with approved safety equipment, such as face or dust masks that are specifically designed to filter out microscopic particles.
10. Do not operate this machine while tired or under the influence of drugs, alcohol or any medication.
11. Make certain the switch is in the **OFF** position before connecting the machine to the power supply.
12. Make certain the machine is properly grounded.
13. Make all machine adjustments or maintenance with the machine unplugged from the power source.
14. Remove adjusting keys and wrenches. Form a habit of checking to see that keys and adjusting wrenches are removed from the machine before turning it on.
15. Keep safety guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately.
16. Check damaged parts. Before further use of the machine, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
17. Provide for adequate space surrounding work area and non-glare, overhead lighting.
18. Keep the floor around the machine clean and free of scrap material, oil and grease.
19. Keep visitors a safe distance from the work area. **Keep children away.**
20. Make your workshop child proof with padlocks, master switches or by removing starter keys.



Warnings

21. Give your work undivided attention. Looking around, carrying on a conversation and “horse-play” are careless acts that can result in serious injury.
22. Maintain a balanced stance at all times so that you do not fall or lean against the blade or other moving parts. Do not overreach or use excessive force to perform any machine operation.
23. Use the right tool at the correct speed and feed rate. Do not force a tool or attachment to do a job for which it was not designed. The right tool will do the job better and safer.
24. Use recommended accessories; improper accessories may be hazardous.
25. Maintain tools with care. Keep blades sharp and clean for the best and safest performance. Follow instructions for lubricating and changing accessories.
26. Turn off the machine before cleaning. Use a brush or compressed air to remove chips or debris — do not use your hands.
27. Do not stand on the machine. Serious injury could occur if the machine tips over.
28. Never leave the machine running unattended. Turn the power off and do not leave the machine until the blade comes to a complete stop.
29. Remove loose items and unnecessary work pieces from the area before starting the machine.
30. Never place hands directly in line with the saw blade.
31. Always use push sticks when cutting small material.
32. Raise or lower the blade guide only when the machine has been turned off and the blade has stopped moving.
33. Always wear leather gloves when handling saw blades. The operator should not wear gloves when operating the machine.
34. Do not allow the saw blade to rest against the workpiece when the saw is not running.
35. The saw must be stopped and the electrical supply must be cut off before any blade replacement, drive belt replacement, or any periodic service or maintenance is performed on the machine.
36. Remove cut off pieces carefully, keeping hands away from the blade. The saw must be stopped and the electrical supply cut off or machine unplugged before reaching into the cutting area.

Familiarize yourself with the following safety notices used in this manual:



This means that if precautions are not heeded, it may result in minor injury and/or possible machine damage.



This means that if precautions are not heeded, it may result in serious injury or possibly even death.

- - SAVE THESE INSTRUCTIONS - -

Introduction

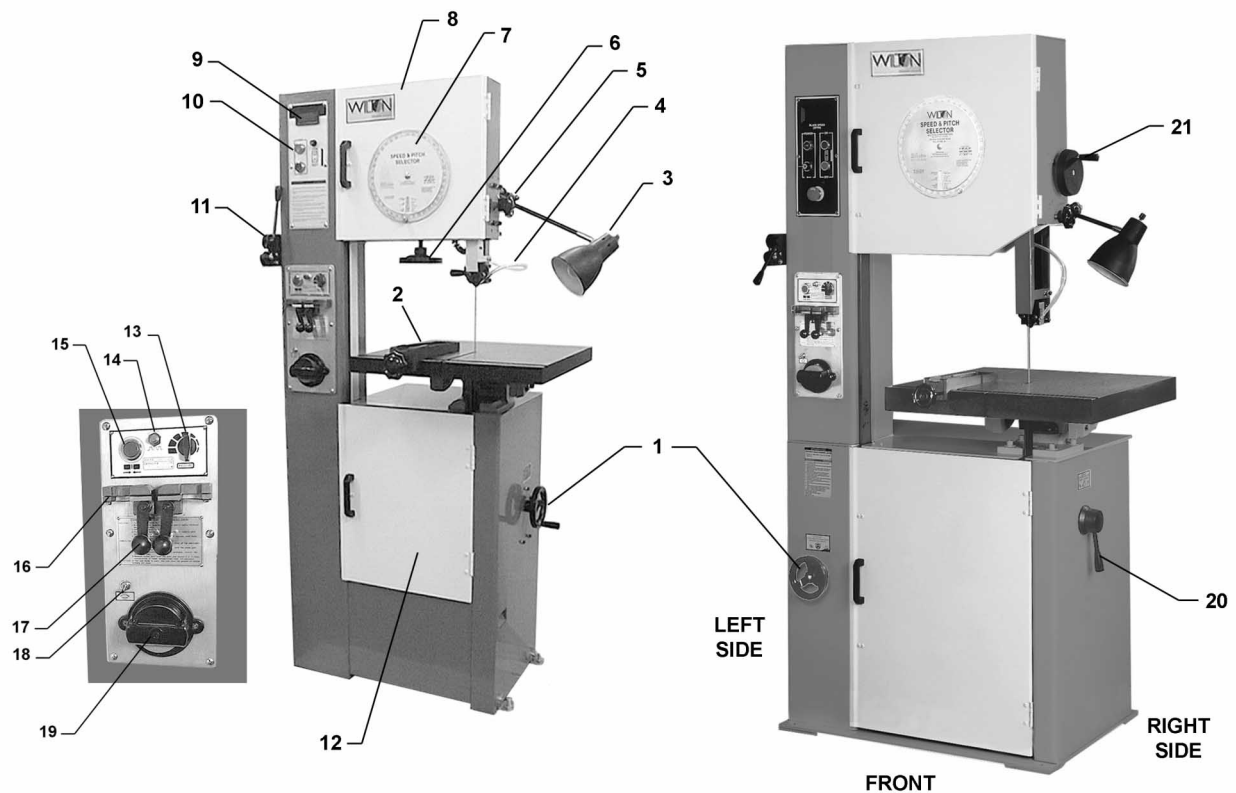
This manual is provided by WMH Tool Group covering the safe operation and maintenance procedures for a Wilton Model 8014FW or 8020FW Band Saw. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. This machine has been designed and constructed to provide years of trouble free operation if used in accordance with instructions set forth in this manual. If there are any questions or comments, please contact either your local supplier or WMH Tool Group. WMH Tool Group can also be reached at our web site: www.wmhtoolgroup.com.

Specifications

Model Number	8014FW	8020FW
Stock Number (220V)	8014FW-2	8020FW-2
Stock Number (440V)	8014FW-4	8020FW-4
Blade Speeds (SFPM)	82-330	Low 65-555, High 390-3280
Height Capacity, Maximum (in.)	8	12
Throat Capacity, Maximum (in.)	14	20
Table Size (L x W)(in.)	20 x 20	24 x 22-1/2
Table Height at 90° (in.)	39	39-1/2
Table Tilt (deg.)	8 fwd/back, 12 left, 15 right	8 fwd/back, 15 left, 15 right
Welder (KVA)	1.5	4.2
Blade Length, approx. (in.)	114	150-1/2 to 156-1/2
Blade Width (in.)	1/8 min., 1/2 max.	1/8 min., 1/2 max.
Motor	1HP, 3Ph	2HP, 3Ph
Floor Space Required (in.)	34 x 24	42 x 29
Net Weight (lbs.)	580	1210

The above specifications were current at the time this manual was published, but because of our policy of continuous improvement, WMH Tool Group reserves the right to change specifications at any time and without prior notice, without incurring obligations.

Features and Terminology



- 1 – Variable Speed Handwheel
- 2 – Fence
- 3 – Work Lamp
- 4 – Chip Blower Hose
- 5 – Guide Post Lock Knob
- 6 – Tension Handwheel
- 7 – Speed and Pitch Selector
- 8 – Upper Door
- 9 – Digital Readout
- 10 – On/Off Buttons
- 11 – Shear

- 12 – Lower Door
- 13 – Pressure Selector Switch
- 14 – Anneal Button
- 15 – Weld Button
- 16 – Welder Clamp
- 17 – Clamp Handle
- 18 – Grinder Toggle Switch
- 19 – Grinder
- 20 – Gear Selector Lever (8020FW only)
- 21 – Post Elevating Handwheel (8020FW only)

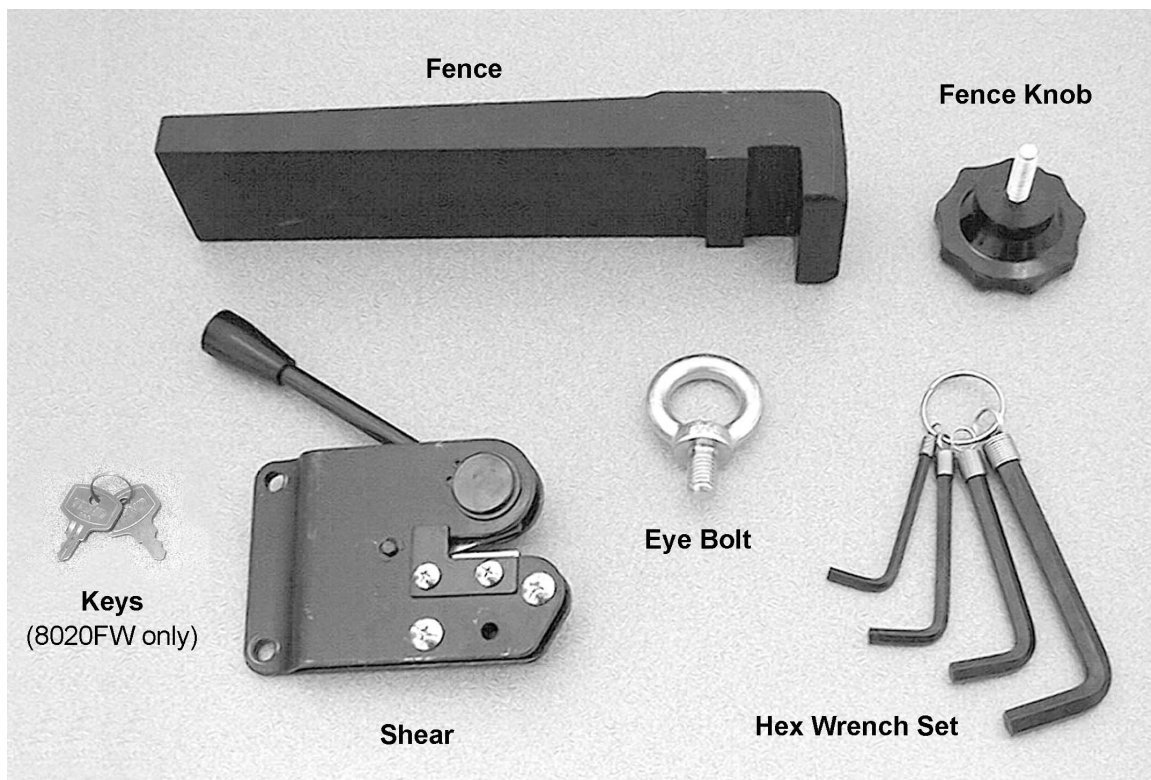
Unpacking

Open shipping container and check for shipping damage. Smaller parts are found in a separate box at the foot of the band saw. Report any damage immediately to your distributor and shipping agent. Do not discard any shipping material until the Band Saw is set up and running properly.

Compare the contents of your container with the following parts list to make sure all parts are intact. Missing parts, if any, should be reported to your distributor. Read the instruction manual thoroughly for assembly, maintenance and safety instructions.

Contents of the Shipping Container

- 1 Band Saw
- 1 Fence
- 1 Knob
- 1 Shear
- 1 Eye Bolt
- 1 Set of Hex Wrenches (3, 6, 8 and 10 mm)
- 1 Set of Keys (*Model 8020FW only*)
- 1 Owner's Manual
- 1 Warranty Card



⚠ WARNING

Read and understand the entire contents of this manual before attempting set-up or operation! Failure to comply may cause serious injury.

Installation and Assembly

Tools required for assembly:

Forklift or hoist with strap or chain
Set of hex wrenches (provided)

Remove all crating and plastic from around the band saw. Remove any lag screws or holding straps which secure the saw to the wood pallet.

Remove the eye bolt from the tool box, and screw it into the hole at the top of the machine. Lift the band saw from the pallet using a strap or chain connected to the eye bolt.

Move the band saw to its permanent location which should be dry, well ventilated, with sufficient lighting. Leave enough space on all sides to handle long stock or perform routine maintenance on the machine. Make sure the floor is level and able to support the weight of the machine.

The Band Saw may be further stabilized by securing it to the floor using lag screws (not provided) through the tabs at the bottom.

Areas of the Band Saw have been given a protective coating at the factory. This should be removed with a soft cloth moistened with kerosene or a mild cleaner/degreaser. Do not use gasoline, paint thinner, or lacquer thinner as these will damage painted surfaces. Do not use an abrasive pad.

Fence

Place the fence (Figure 1) onto the groove in the table as shown, and screw in the knob to tighten the fence in position.

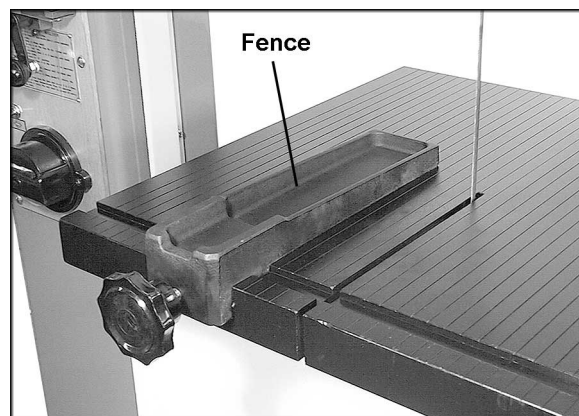


Figure 1

Shear

Remove the two socket head cap screws at the back of the column, and use them to mount the shear, as shown in Figure 2.

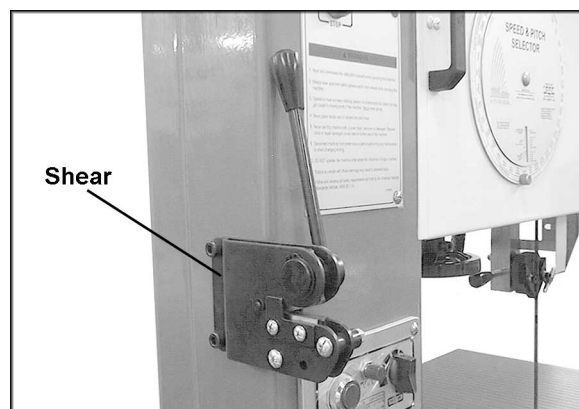


Figure 2

Grounding Instructions

⚠ WARNING Electrical connections must be made by a qualified electrician in compliance with all relevant codes. This machine must be properly grounded to help prevent electrical shock and possible fatal injury.

This Band Saw must be grounded. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes, is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Make sure the voltage of your power supply matches the specifications on the motor plate of the Band Saw. This Band Saw should be connected to a dedicated circuit. You may either install a plug or “hard-wire” the Band Saw directly to a control panel. If you are connecting a plug, use a proper UL-listed plug suitable for the voltage of the motor.

If the Band Saw is to be hard-wired to a panel, make sure a disconnect is available for the operator. During hard-wiring of the Band Saw, make sure the fuses have been removed or the breakers have been tripped in the circuit to which the Band Saw will be connected. Place a warning placard on the fuse holder or circuit breaker to prevent it from being turned on while the machine is being wired.

Test Run

After wiring the Band Saw, you should check that the wires have been connected properly. Connect machine to the power source and turn it on for an instant to watch the direction of blade movement.

If the blade runs upward instead of downward, **disconnect machine from power**, and switch any two of the three leads in the motor junction box (see “Electrical Connections”, pages 53 and 54).

Extension cords

The use of an extension cord is not recommended for this Band Saw. But if one is necessary, make sure the cord rating is suitable for the amperage listed on the machine’s motor plate. An undersize cord will cause a drop in line voltage resulting in loss of power and overheating.

Use the chart in Figure 3 as a general guide in choosing the correct size cord. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

Recommended Gauges (AWG) of Extension Cords

Amps	Extension Cord Length *					
	25 feet	50 feet	75 feet	100 feet	150 feet	200 feet
< 5	16	16	16	14	12	12
5 to 8	16	16	14	12	10	NR
8 to 12	14	14	12	10	NR	NR
12 to 15	12	12	10	10	NR	NR
15 to 20	10	10	10	NR	NR	NR
21 to 30	10	NR	NR	NR	NR	NR

*based on limiting the line voltage drop to 5V at 150% of the rated amperes.

NR: Not Recommended.

Figure 3

Adjustments

[NOTE: Procedures for the model 8014FW and the model 8020FW are identical except where noted.]

Blade Removal and Installation

⚠ WARNING Wear leather gloves when removing or installing band saw blades. New blades usually come in a coiled position; to prevent injury, hold the blade with one hand while carefully uncoiling it with the other.

1. Disconnect machine from power source.
2. Open upper and lower doors.
3. Loosen tension on the blade by turning the tension handwheel (Figures 6 and 7) to the left.
4. Remove the worn blade and install the new blade, making sure the teeth face downward where they pass through the slot in the table.
5. Use the tension handwheel to tighten the tension on the blade.
6. Proceed with “Blade Tension” and “Blade Tracking” before operating the band saw.

Guide Post

For effective cutting and for safety's sake, there should be a minimum amount of space between the top of the workpiece and the bottom of the blade guides. Loosen the guide post lock knob (see Figure 6) and use the handle (handwheel on 8020FW) to move the guide post, until the guides clear the workpiece by about 1/8". Retighten the lock knob.

Blade Tension

1. Raise the guide post to its highest position.
2. Apply finger pressure to the blade. Travel from vertical should be approximately 3/8" each way.
3. Rotate blade tension handwheel (Figures 6 and 7) to the right to increase tension on the blade, or to the left to decrease tension on the blade.

[NOTE: The Model 8020FW has a tension gauge, shown in Figure 7. Initially, set the tension to correspond to the width of the blade as indicated on the gauge. You may later find it necessary to “fine-tune” this setting depending upon the material being worked.]

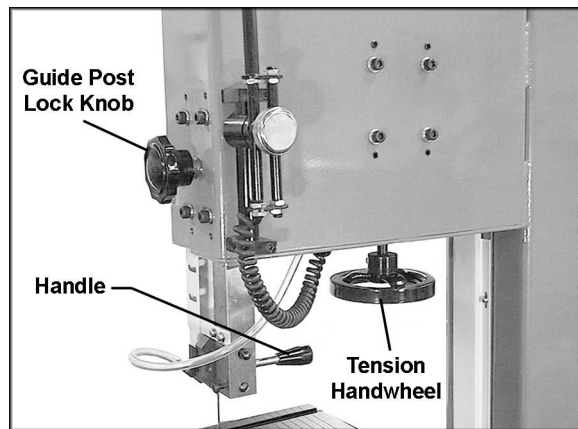


Figure 6
(Model 8014FW only)

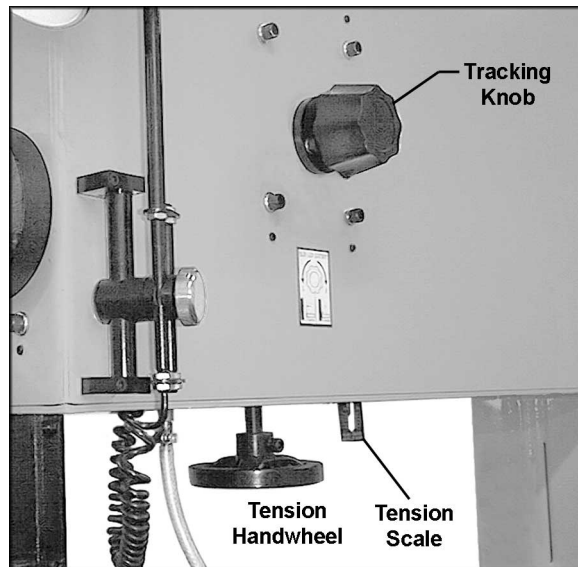


Figure 7
(Model 8020FW only)

Keep in mind that too much or too little blade tension can cause blade breakage and/or poor cutting performance.

If the band saw is to be idle for a period of time, release tension on the blade – this will prolong blade life.

Blade Tracking

Blade tracking has been tested at the factory but should be checked as the machine receives use, and after each blade change.

1. Disconnect machine from power source.
2. Move the upper and lower blade guides away from the blade (see “Blade Guides”).
3. Open the top blade wheel door.
4. Rotate upper blade wheel by hand, observing the position of the blade as it rides upon the wheel. The blade should run next to, but not against, the flange at the rear of the wheel. Constant contact with the flange will eventually damage the flange.
5. If the blade tracks improperly, use the screws at the back of the saw (Figure 6) to adjust the model 8014FW. Loosen the socket head cap screws as needed to allow adjustment of the set screws.

[Model 8020 FW: Use the tracking knob at the back of the machine, shown in Figure 7.]

IMPORTANT: Tracking adjustments are sensitive; make them in small increments and allow the blade time to react to the changes.

6. When satisfied, return the upper and lower blade guides close to the blade.
7. Close upper door, reconnect Band Saw to power, and run it for a few moments. Make any further tracking adjustments as needed, with the machine disconnected from power.

Blade Guides

CAUTION Blade guides must be properly adjusted or damage may occur to the blade and/or guides.

1. Loosen the two socket head cap screws on the guide housing. See Figure 8.
2. Position the guide support in accordance with the width of the blade. The blade guides must be adjusted far enough back to clear the blade even during the cutting operation when the blade is deflected toward the rear. The front end of the blade guides should be adjusted approximately 1/8” behind the blade teeth. See Figure 8.

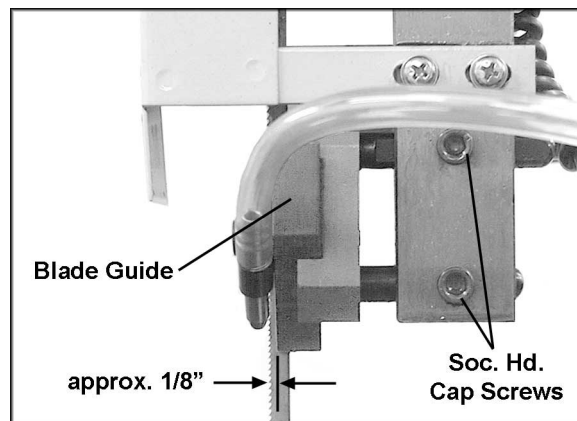


Figure 8

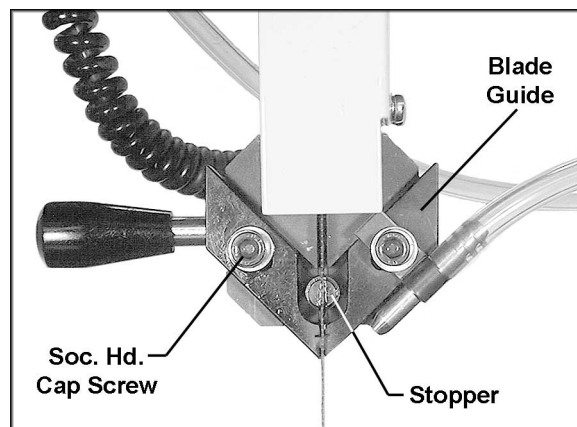


Figure 9

3. Tighten the socket head cap screws securely.
4. This procedure should be done for both upper and lower guide housings.
5. Open upper door and rotate the wheel by hand until the weld portion of the blade is between the two blade guides.
6. Loosen the socket head cap screws (Figure 9) on the blade guides.
7. Move the blade guides so they are as close to the blade as possible without touching it.
8. Tighten the socket head cap screws (Figure 9). Make sure the air nozzle is still directed properly toward the cutting area.
9. This procedure should be done for both upper and lower blade guides.

As the blade guides receive use, they will become worn at the front end. If the blade guides become difficult to adjust, switch the left and right blade guides (Figure 10).

The stopper positioned behind the back edge of the blade (Figure 10) will also become worn with use, and the friction of the shaft with the saw blade may cause lines in the surface of the stopper. If this occurs, loosen the socket head cap screw, and rotate the stopper to either side to change its position on the blade. Re-tighten socket head cap screw.

Squaring Work Table with Blade

1. Place the table in horizontal position with "0" on the scale.
2. Place a machinist's square on the table and against the blade, as shown in Figure 11, for side-to-side squaring of the table. Place the square against the edge of the blade for front-to-back squaring.
3. If the square is not flush against the blade, loosen either set of socket head screws below the table (Figure 12) with a hex wrench (provided). Make adjustments as necessary, and tighten the screws.
4. Make sure the pointer is set at "0" on both scales. If it needs slight adjustment, loosen the screw and shift the pointer until it aligns with "0". Re-tighten the screw.

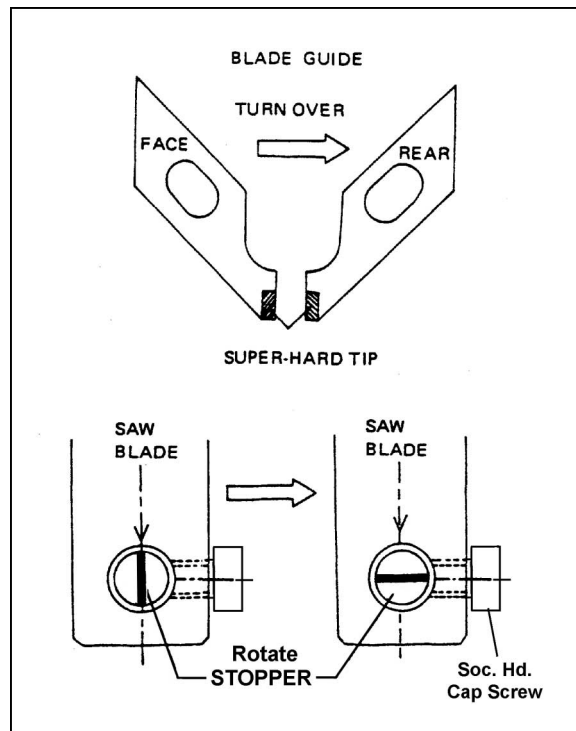


Figure 10

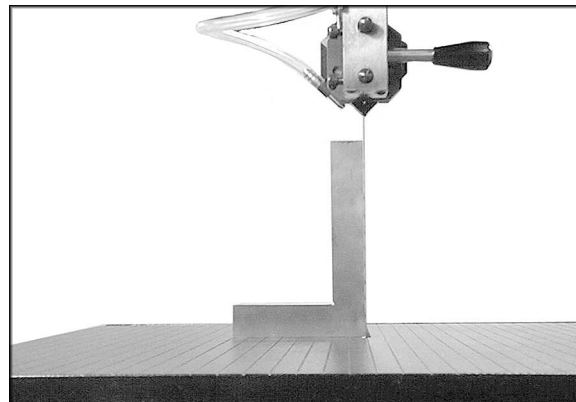


Figure 11



Figure 12

Replacing Drive Belts

(See Figure 13)

1. Disconnect machine from power source.
2. To remove the **air compressor belt**, loosen the two hex cap screws (A, Figure 13) on the mounting plate and tilt the air compressor toward the motor. After installing a new belt, tilt the air compressor away from the motor to tension the belt, and re-tighten the two hex cap screws.
3. To remove the **motor drive belt**, first remove the air compressor belt (see above). Then loosen the two lock nuts (B, Figure 13) on the motor bracket. Lift up on the motor to slacken and remove the belt. After installing a new motor drive belt, push the motor back down and tighten the two lock nuts.
4. To remove the **variator belt**, first slide the motor drive belt off the variator pulley (see above). Then lift up on the variator pulley (Figure 13) to slacken the belt.
5. After installing new belts, make sure they are tensioned properly and all screws or nuts are re-tightened.

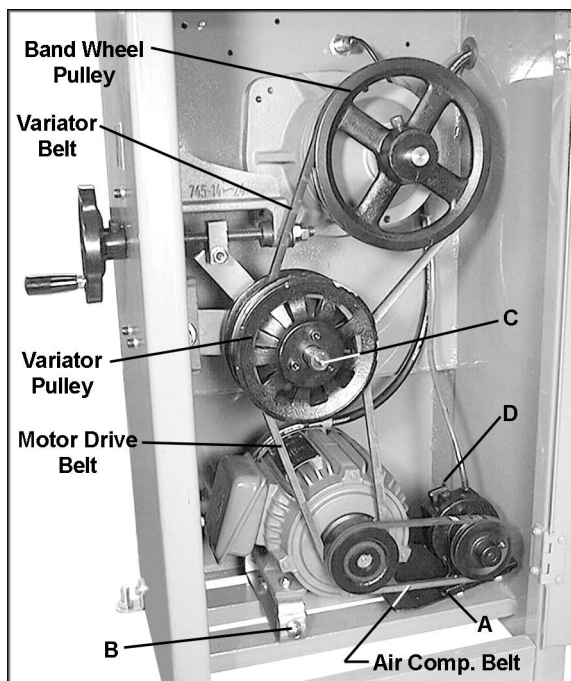


Figure 13
(Model 8014FW)

Work Lamp Bulb

The Work Lamp uses a standard medium-base 60 watt bulb (not provided).

Band Saw Operation

Consult "Features and Terminology" on page 7 for identification of the controls.

On the Model 8020FW, Unlock the control panel using the provided keys.

⚠ WARNING Never operate the band saw without blade guards in place and secured.

Blade Break-In Procedure

New blades are very sharp and, therefore, have a tooth geometry that is easily damaged if a careful break-in procedure is not followed. Consult the blade manufacturer's literature for break-in of specific blades on specific materials. The following procedure will be adequate, however, for break-in of blades on lower alloy ferrous materials.

1. Use a section of round stock.
2. Operate the saw at low speed. Start the cut with a very light feed rate.

3. When the saw has completed about 1/3 of the cut, increase the feed rate slightly and allow the saw to complete the cut.
4. Keep the feed rate at the same setting and begin a second cut on the same or similar workpiece.
5. When the saw has completed about 1/3 of the cut, increase the feed rate while watching the chip formation until cutting is at its most efficient rate (refer to "Evaluating Cutting Efficiency" below). Allow the saw to complete the cut.
6. The blade is now considered ready for use.

Setting Blade Speed

1. Consult the Speed and Pitch selection chart on the front of the band saw. A chart is also included on page 23 of this manual. Select the speed setting for the material to be cut.
2. Model 8020FW: While the machine is NOT running, move the gear selector lever (Figure 15) to the required speed setting (high or low).

CAUTION Move the gear selector lever only when the machine is NOT running, to prevent damage to the gearbox.

3. Start the saw using the pushbutton.
4. Turn the variable speed handwheel (Figures 14 and 15) to the required speed. Turning the handwheel clockwise increases speed. Turning counterclockwise decreases speed.

CAUTION Rotate the speed setting handwheel only when the band saw is running.

Evaluating Cutting Efficiency

The best way to determine whether the blade is cutting efficiently is to observe the chips formed by the cutting.

- If the chip formation is powdery, then the feed is much too light, or the blade is dull.
- If the chips formed are curled, but colored – blue or straw colored from heat generated during the cut – then the feed rate is too high.
- If the chips are slightly curled and are not colored by heat – the blade is sufficiently sharp and is cutting at its most efficient rate.

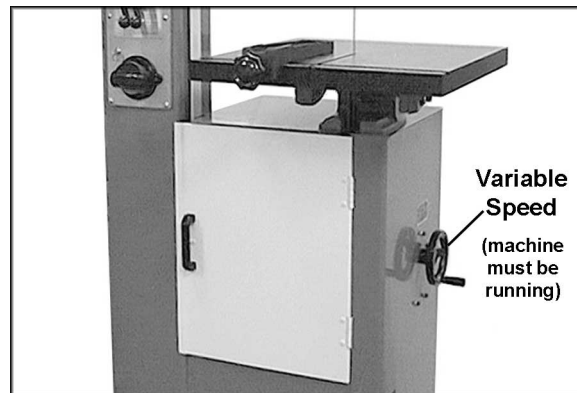


Figure 14
(Model 8014FW only)



Figure 15
(Model 8020FW only)

Welder Operation

⚠WARNING Wear eye protection while operating the welder. Use care when handling the blade after welding to avoid burns.

The welding procedure involves the following steps: Shearing the blade, grinding teeth to allow for the weld area, the actual welding, inspection of the blade, annealing, grinding and a final inspection of the blade. This procedure can be accomplished using the shear and welder assemblies on your band saw. Proceed as follows:

Shearing

Cut the blade to the longest length needed for the band saw. Using the shear to cut your blade will ensure that the blade ends are cut flat, square and smooth.

1. Place the blade in the shear as shown in Figure 16. Make sure the blade is held square with the shear knife, so that the cut will be square with the blade.
2. Position the blade so that the cut is made at a place that allows for uniform spacing of the teeth. See Figure 17.
3. Push down the handle.

IMPORTANT: If a blade has been cut by using snips, the ends of the blade must be ground square before welding them together, as shown in Figure 18.

Removing Teeth

In fine pitched blades, one or more of the teeth on each side of the cut may need to be removed by grinding so that the weld area of the blade is uniform and the teeth will be uniformly spaced. See Figure 17.

Welding

4. Carefully clean the ends of the blade which will contact the welder jaws. Remove any dirt, oil, scale and oxide.

⚠CAUTION Any rust on the blade in the vicinity of the weld must be ground off before the blade can be welded.

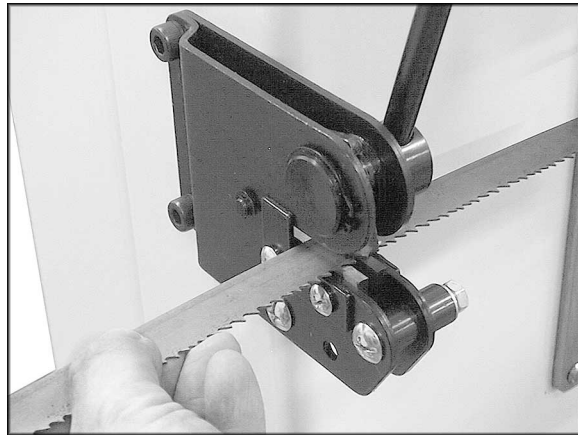


Figure 16

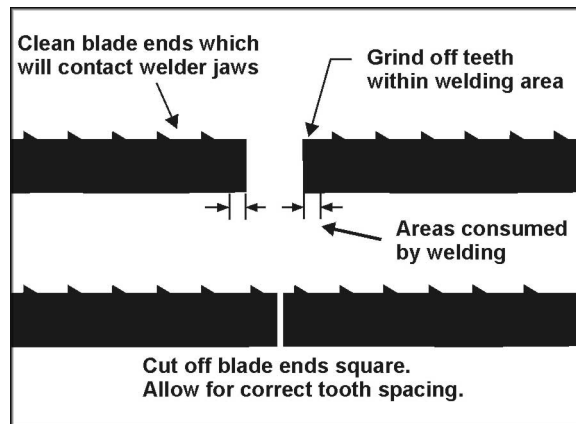


Figure 17

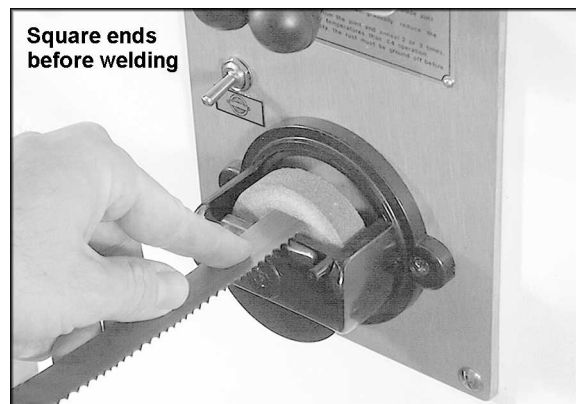


Figure 18

5. Turn pressure knob to "0" position (pointed downward). NOTE: There will be some resistance when turning the knob.
6. Insert one end of the blade in the left clamp (Figure 19). Position the back edge of the blade against the back edge of the left clamp. Then position the end of the blade midway between the left and right clamps. Tighten the left clamp.
7. Insert the other end of the blade in the right clamp. Position the back edge of the blade against the back of the right clamp. Then butt the end of the blade against the other end of the blade (the blade ends need to be in contact with each other). Tighten the right clamp.
8. Set the pressure selector switch (counterclockwise rotation) to the approximate setting required for the width of the blade being welded.

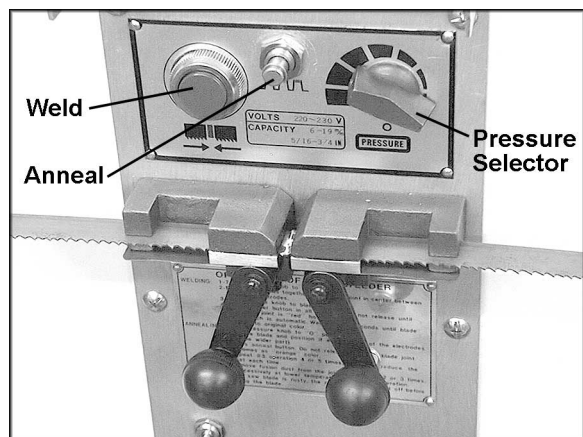


Figure 19

⚠ WARNING Keep hands clear of the weld area and the clamp jaws during welding.

9. Press and hold the weld button (Figure 19). When the weld button is pushed, the clamps move together to apply pressure to the blade ends. At the same time, sparks will come from the blade ends as they are being welded. Do not release weld button until the blade joint is "red hot."
10. Release the weld button, and wait 3 or 4 seconds until blade returns to original color. Unclamp the blade.
11. Rotate the pressure selector switch to "0".

⚠ CAUTION The welder is designed for intermittent use. Repeated welding within a short period of time may cause the welder to overheat.

12. Remove the blade from the clamps, and carefully inspect it. The spacing of the teeth should be uniform and the weld should be located in the center of the gullet. Misalignment is easily noted at this time from the weld appearance. See Figure 20 for examples of incorrect welds.
13. If the weld is imperfect, refer to the troubleshooting section on page 28 for possible remedies to any problems. Make corrections before annealing.

Annealing

The blade must now be annealed, or cooled at a controlled rate to prevent it becoming too brittle.

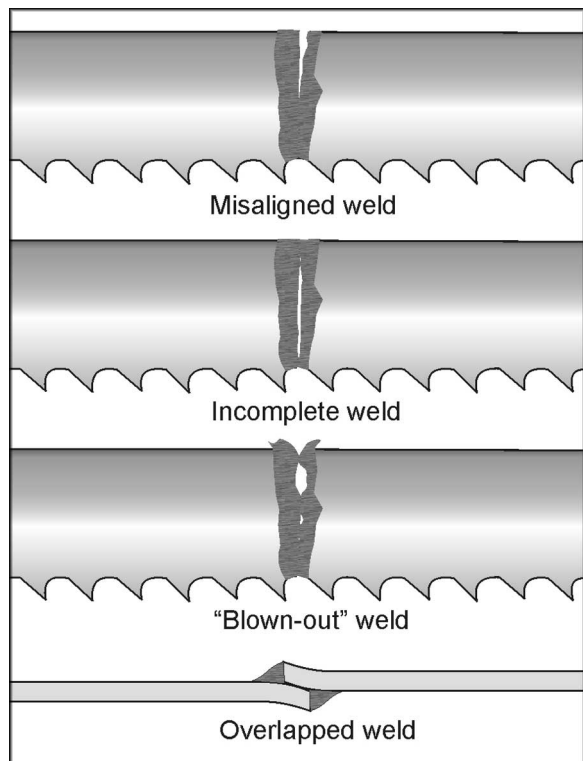


Figure 20

14. Turn the pressure selector knob all the way to the left so the clamp jaws are closest to each other.
15. Insert the blade into the clamps so the weld area is centered between the clamps. Secure the blade in the jaws with the clamp handles.
16. The annealing procedure involves “jogging” (pressing and releasing) the anneal button (Figure 19).

CAUTION Do not press and hold the anneal push button. The weld will be overheated and will fail due to the excessive heat.

How long to heat the weld depends upon blade type:

Carbon Steel Blade: Jog anneal button until the weld becomes a “dull cherry” to “cherry red” color. Allow the blade to cool slowly by decreasing the jogging frequency.

Carbon Steel Hard Back Blade: Heat slowly until the weld becomes a “deep blue” color. Continue to jog the anneal button until the width of the blue color is one-half the length of the band exposed between the jaws. See Figure 21. Do not heat beyond the “blue” stage – if the band begins to turn red, it is too hot. Cool quickly by releasing the anneal button.

Bi-Metal Blade: Heat slowly until weld just begins to emit light (a “dull red” color). The desired color may be difficult to see in room light – always shade the area with your hand to see it better. Cool the weld quickly by releasing the anneal button.

17. Release both blade clamps and remove the blade.
18. Check the integrity of the weld. Bend the blade to form a radius at the point of the weld. The size of the radius should be approximately the same as the radius of the band saw drive wheel. The weld must hold and not break or crack after forming the radius. If the weld breaks, cut away the welded area and repeat the welding-annealing process.
19. Check to make sure the welded section is the same thickness as the rest of the blade. If not, grind off excess weld material using the grinder (Figure 22). Figure 23 illustrates some unacceptable grindings.

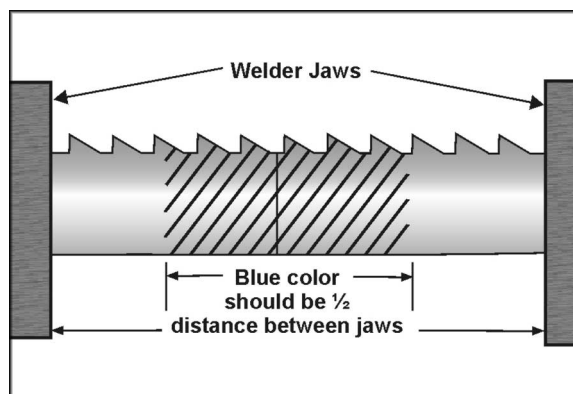


Figure 21

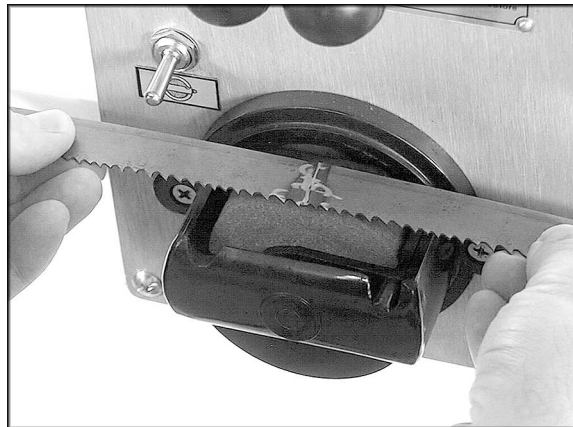


Figure 22

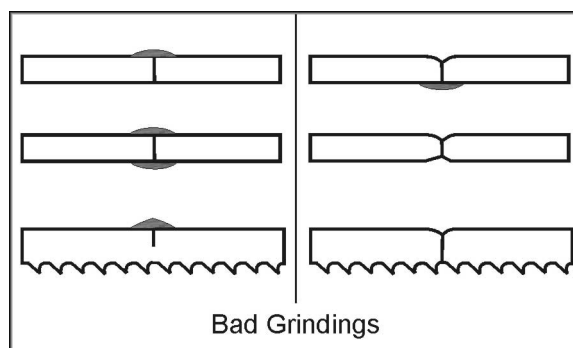


Figure 23

CAUTION If the blade is thicker at the weld than at the rest of the blade, using the blade may damage the guides.

20. When grinding, do not hit the teeth, or grind deeper than the thickness of the blade; or burn or overheat the weld area. Be sure to remove flash from the back edge of the blade. Any flash or "stub" teeth which project beyond the normal set or height of the other teeth must be ground off.

Clean Up

It is very important that the clamp jaws be kept clean at all times. The jaws or inserts must be wiped or scraped clean after every weld. Doing this will ensure better welds by holding proper alignment, preventing flash from becoming embedded in the blade, and preventing shorts or poor electrical contact.

Blade Selection

Using the proper blade for the job will increase the operating efficiency of your band saw, help reduce necessary saw maintenance, and improve your productivity. Thus, it is important to follow certain guidelines when selecting a saw blade. Blade breakage, teeth stripping, crooked cuts, and other common complaints are, in most instances, caused by using the wrong blade.

Consider these factors when selecting a blade:

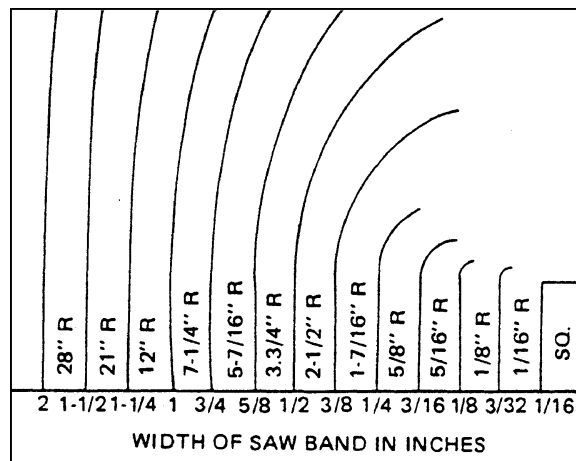
- The type of material you will be cutting.
- The thickness of the workpiece.
- The features of the workpiece, such as bends or curves with small radii.

These factors are important because they involve basic concepts of saw blade design. There are six blade features that are normally changed to meet certain sawing requirements:

1. width
2. gage
3. pitch (number of teeth per inch)
4. tooth form (or shape)
5. the "set" of the teeth
6. the blade material itself

Width

Band saw width is measured from the back of the blade to the tip of the tooth. Always use the widest blade possible that still performs the needed job. Generally, wider blades are used for straight cutting. Narrower blades are used when the part being cut has curves with small radii. Refer to the chart in Figure 24 to select a width for radius cutting.



The radii in this chart are all based on cutting 1-inch thick mild steel and using manual feed. In order to cut a close tolerance radius the following factors, in addition to the blade width, must be considered: thickness, machinability, feed force and the location of the pivot point. Heavy feed in thick work, for example, results in a barrel-shaped cut.

Figure 24

Gage

Use the standard gage (blade thickness) except when the increased thickness of the workpiece decreases accuracy and width cannot be increased to compensate.

Examples of heavy gage applications:

1. When radius cutting in thick materials.
2. When the maximum width usable on the machine still provides insufficient beam strength for the blade. (Beam strength is the blade's resistance to compression caused by strong feeding or the type of material being cut).

Pitch

Pitch is measured in “teeth per inch” (T.P.I.) and can be constant or variable. Figure 25 shows blades with different pitches. A fine pitch (more teeth per inch) will cut slower but smoother. A coarse pitch (fewer teeth per inch) will cut rougher but faster.

As a rule of thumb, the thicker the workpiece, the coarser will be the blade pitch. If you have to cut a hard or very brittle material, you will probably want to use a blade with a finer pitch in order to get clean cuts.

Using a blade with too few teeth may cause vibration and a rough cut, while too many teeth may cause the gullets to fill with shavings and overheat the blade.

When cutting thin materials, the rule for blade pitch is to have a minimum of two teeth engaging the workpiece at all times.

Consult the chart on the front of the band saw to determine pitch. There is also a chart on page 23 of this manual.

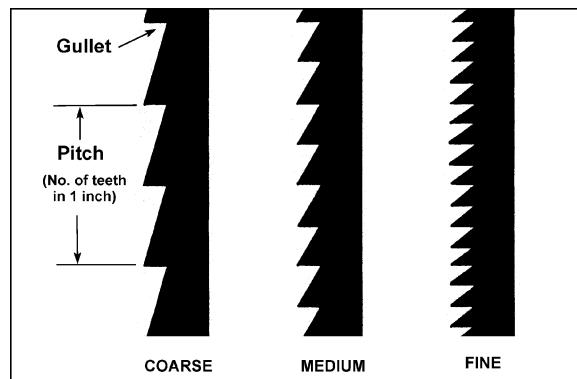


Figure 25

Shape

Figure 26 shows common types of tooth shape. Tooth shape has an effect on cutting rate.

The Regular blade, sometimes called a “raker” blade, has evenly spaced teeth that are the same size as the gullets, and a 0-degree rake angle. This is a good general-purpose blade, and is often used on ferrous metals, hard bronze, hard brass and thin materials.

The Skip type has fewer teeth and larger gullets, providing the added chip clearance needed for cutting softer, nonferrous materials, as well as non-metallic applications such as wood, plastic, cork, and composition materials.

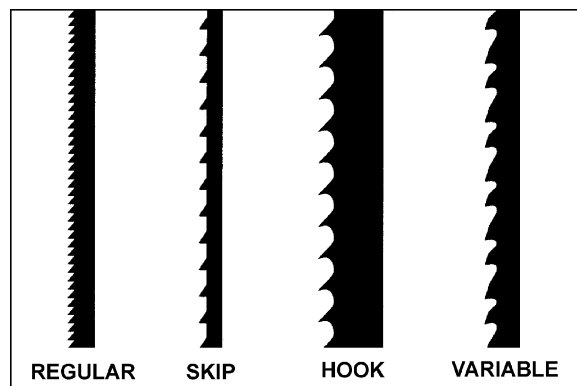


Figure 26

The Hook blade has larger teeth and gullets and a positive rake angle which permits better feed and chip removal. It is useful for both cast iron as well as hard, nonferrous alloys.

Variable-tooth blades combine features of the other styles. They generally offer smooth cuts and long blade life, while reducing noise and vibration.

Set

The term “set” refers to the way in which the saw teeth are bent or positioned. Bending the teeth creates a kerf that is wider than the back of the blade.

Set patterns are usually selected depending upon the type of material that needs to be cut. Three common set patterns are shown in Figure 27.

The Regular, or Raker, set is generally furnished on blades which have 2 to 24 teeth per inch. These blades have one tooth set to left, one to right, and one unset tooth called a raker. The raker set is often used for contour cutting.

The Wavy set is generally furnished on blades which have 8 to 32 teeth per inch. This set has groups of teeth bent alternately to left and right, which reduces the strain on individual teeth. Blades with a wavy set are used where tooth breakage is a problem, such as in cutting thin stock or where a variety of work is cut without changing blades; also when the thickness of the workpiece changes, such as cutting hollow tubing or structurals.

The Straight set has teeth in a consistent, alternating pattern, which is good for fast, basic cuts where a fine finish is not important. This set is also popular for cutting wood and plastics.

Material

Some of the most common blade materials include:

Carbon Steel Blade – widely used because of its general adaptability for all types of work and for its lower cost. Excellent for cutting nonferrous metal and plastics.

High Speed Steel Blade – resists heat generated while cutting to a greater extent than carbon steel blades. Used for ferrous metals, and more expensive than carbon steel blades.

Carbide-Tipped Blade – Best used for cutting titanium, beryllium, and case hardened materials.

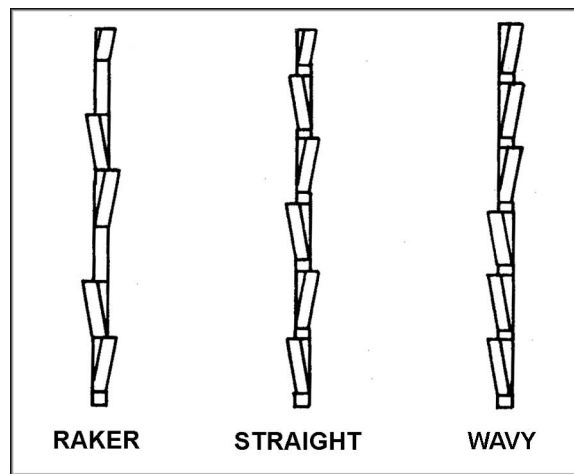


Figure 27

Blade Breakage

Band saw blades are subject to high stresses and breakage may sometimes be unavoidable. However, many factors can be controlled to help prevent most blade breakage. Here are some common causes for breakage:

1. Misalignment of the blade guides.
2. Feeding workpiece too quickly.
3. Using a wide blade to cut a short radius curve.
4. Excessive tension.
5. Teeth are dull or improperly set.
6. Upper guides are set too high off the workpiece.
7. Faulty weld on blade.

Maintenance

⚠WARNING Before doing maintenance on the machine, disconnect it from the electrical supply by pulling out the plug or switching off the main switch! Failure to comply may cause serious injury.

Use a brush to loosen accumulated chips and debris. Use a shop vacuum to remove the debris.

Make sure the chip brush on the lower band wheel is properly adjusted.

If the power cord is worn, cut, or damaged in any way, have it replaced immediately.

The chart (Figure 28) identifies areas that require cleaning and/or lubricating. Use good quality, general purpose lubricants.

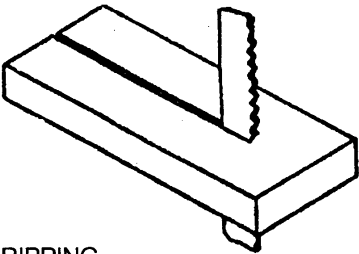
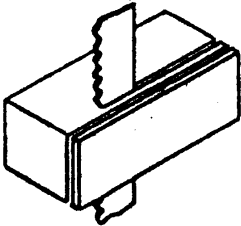
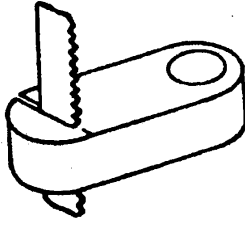
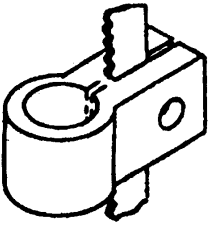
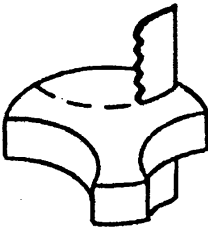
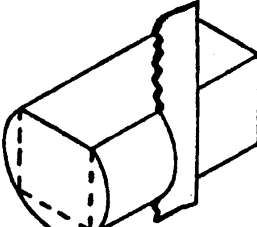
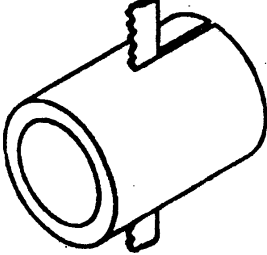
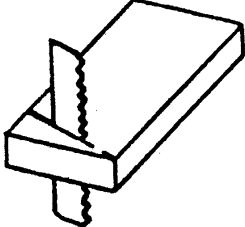
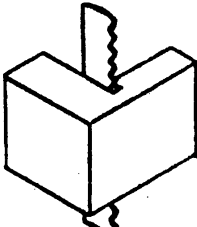
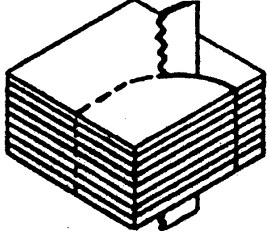
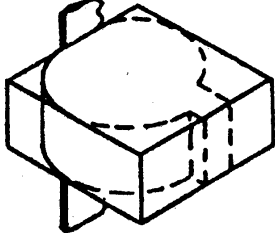
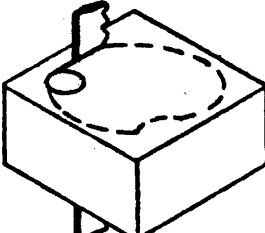
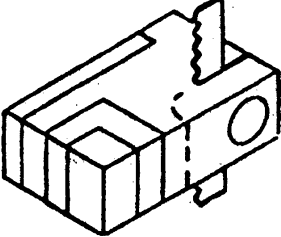
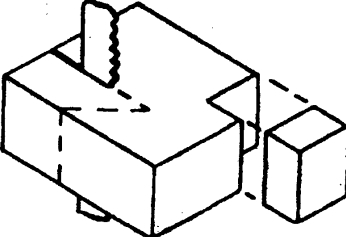
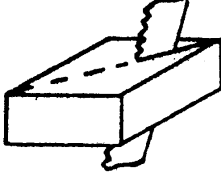
Machine Part	Lubricant	Frequency
Bearings	Machine oil	Wipe down every day and lubricate every 6 months
Rack and sliding portion of Guide Post	Grease	weekly
Worm gear	Grease	every 3 months
Gear Box (8020FW only)	Grease	as needed
Variator pulley – use fitting at end of shaft (C, Figure 13)	Grease	every 100 hours
Blade tension screw	Grease	once a month
Air compressor reservoir (see D, Figure 13)	Air Tool oil	every 6 months
Weld clamp jaws	-----	clean after each use
Rubber tire	-----	wipe off daily
Work table	-----	clean daily

Figure 28

Speed and Pitch Chart

Material	Thickness	Sawing speed (M/min) for specified Material & thickness					Pitch (No. of teeth / inch)				
		~1/4	1/4~1	1~3	3~6	6~	~1/4	1/4~1	1~3	3~6	6~
High carbon steel		70	60	60	45	45	18	14	10	6	4
Free cutting steel		60	45	40	30	30	18	14	12	6	4
Ordinary tool steel		40	30	30	25	20	24	18	14	8	4
High speed steel		30	25	20	20	20	24	14	12	8	4
Stainless steel		25	20	20	20	20	18	14	10	8	4
Thick iron plate		45	30	20	20	20	18	14	10	8	4
Cast iron		45	40	30	25	20	18	14	12	8	4
Aluminum 108,A108		365	275	180	120	60	18	10	6	3	3
A132,C133		365	275	180	120	60	18	10	6	3	3
13,43,85,4032,6151		550	425	245	150	90	18	10	6	3	3
113,138,152,B-195		550	380	275	180	90	18	10	6	3	3
B-214,312,333		550	380	275	180	90	18	10	6	3	3
212,355,356,360,380		550	380	275	180	90	18	10	6	3	3
142,195,750		915	825	735	670	610	18	10	6	3	3
2014,2018,2025		915	825	735	670	610	18	10	6	3	3
6053,7075		915	825	735	670	610	18	10	6	3	3
6061,6063		1500	1220	1065	915	770	18	10	6	3	3
122,214,218,220		1500	1385	1220	1065	915	18	10	6	3	3
1100,2011,2017,3003,3004		1500	1500	1500	1385	1220	18	10	6	3	3
2024,5052		1500	1500	1500	1500	610	18	10	6	3	3
Magnesium bronze		125	75	40	25	20	14	8	6	3	3
Leaded commercial branze		915	610	450	305	150	14	8	6	3	3
Commercial branze		150	105	60	30	20	14	8	6	3	3
Free cutting brass		1220	915	610	450	300	14	8	6	3	3
Forging brass		610	460	335	245	150	14	8	6	3	3
High leaded brass		1065	825	565	410	260	14	8	6	3	3
Leaded brass		610	460	275	215	150	14	8	6	3	3
Low loaded brass		455	305	150	60	20	14	8	3	3	3
Leaded copper		765	550	360	240	120	14	8	3	3	3
Cadmium copper		90	60	30	25	20	14	8	3	3	3
Magnesium		1500	1385	1220	915	610	14	8	3	3	3
Cadmium		1220	1065	915	915	760	14	8	6	3	3
Manganese		60	45	30	25	20	24	14	6	3	3
Nickel		55	40	30	25	20	18	14	6	3	3
Bdenum		55	45	40	35	25	18	14	6	3	3
Chrome		50	40	25	20	20	18	14	6	3	3
Silicon		55	30	30	20	20	18	14	6	3	3
Carbon (8~35)		1220	1065	915	765	610	10	6	3	3	3
Carbon (35~65)		615	245	90	45	20	14	10	6	3	3
Carbon (1008~ 1095)		60	45	30	25	20	24	14	6	3	3
Rubber		460	155	90	60	45	18	14	10	8	6
Plastics		1500	1065	765	550	455	10	8	3	3	3

Typical Band Saw Operations

 <p>RIPPING</p>	 <p>SLICING</p>	 <p>BEVELING</p>
 <p>SLOTTING</p>	 <p>SEGMENTING</p>	 <p>SHAPING CUT</p>
 <p>SPLITTING</p>	 <p>ANGULAR CUT</p>	 <p>GRINDING RELIEF</p>
 <p>STACK CUTTING</p>	 <p>EXTERNAL CONTOUR</p>	 <p>INTERNAL CONTOUR</p>
 <p>THREE-DIM. CUTTING</p>	 <p>SHAPING</p>	 <p>COMPOUND ANGLE CUT</p>

Troubleshooting – Operating Problems

Trouble	Probable Cause	Remedy
Saw blade is twisted.	Blade has been improperly welded.	Re-weld the blade (see page 16-19).
	Blade not installed properly.	Set the blade guides closer, and increase blade tension.
	Feeding workpiece too forcefully.	Decrease feed rate.
	Incorrect choice of blade.	Use a proper width blade for radius or wavy line cutting.
Cuts not straight.	Blade tooth has improper set.	File to proper set or replace blade.
	Not enough blade tension.	Increase tension.
	Guide post too high.	Set guide post closer to the workpiece.
	Feed rate too strong.	Decrease feed rate.
Blade slips off wheel(s).	Blade not tensioned enough.	Increase tension.
	Wheels not aligned properly.	Contact technical service for adjustment of wheel alignment.
Blade quickly becomes dull.	Blade speed too fast.	Use slower speed.
	Wrong blade for the job.	Use proper blade for workpiece.
	Feed rate excessive.	Decrease feed rate.
Blade warps.	Dull blade.	Sharpen or replace blade.
	Guide post not fixed properly.	Fix guide post in position.
	Blade not tensioned enough.	Increase tension.
	Blade not 90° to table.	Adjust table perpendicular to blade (see page 13).
Band Saw is noisy, or vibrates too much.	Band Saw not resting on level surface.	Floor must be flat.
	The variator pulley is damaged.	Replace pulley.
Blade teeth keep breaking.	Incorrect blade for the job.	Select proper blade pitch and style.
	Blade is of inferior material.	Use better quality blade.
Blade becomes damaged easily.	The blade has been over-annealed.	Decrease annealing temperature.
	Too large a gap between blade guides and blade.	Adjust proper gap between guides and blade (see page 13).
	Blade too wide for short radius cutting.	Select narrower blade appropriate to the job.

Troubleshooting – Mechanical and Electrical Problems

Trouble	Probable Cause	Remedy
Machine will not start/restart or repeatedly trips circuit breaker or blows fuses.	No incoming power.	Verify machine is connected to power source. Make sure START button is pushed in completely, and the STOP button is disengaged.
	Cord damaged.	Replace cord.
	Overload automatic reset has not reset.	When the band saw overloads on the circuit breaker built into the motor starter, it may take time for the machine to cool down before restart. Allow unit to adequately cool before attempting restart. If problem persists, check amp setting on the motor starter.
	Band Saw frequently trips.	One cause of overloading trips which are not electrical in nature is too heavy a cut. The solution is to reduce feed pressure into the blade. If too heavy a cut is not the problem, then check the amp setting on the overload relay. Match the full load amps on the motor as noted on the motor plate. If amp setting is correct then there is probably a loose electrical lead. Check amp setting on motor starter.
	Building circuit breaker trips or fuse blows.	Verify that band saw is on a circuit of correct size. If circuit size is correct, there is probably a loose electrical lead. Check amp setting on motor starter.
	Switch or motor failure (how to distinguish).	If you have access to a voltmeter, you can separate a starter failure from a motor failure by first, verifying incoming voltage at 220+/-20 and second, checking the voltage between starter and motor at 220+/-20. If incoming voltage is incorrect, you have a power supply problem. If voltage between starter and motor is incorrect, you have a starter problem. If voltage between starter and motor is correct, you have a motor problem.
	Motor overheated.	Clean motor of dust or debris to allow proper air circulation. Allow motor to cool down before restarting.

Trouble	Probable Cause	Remedy
Machine will not start/restart or repeatedly trips circuit breaker or blows fuses.	Motor failure.	If electric motor is suspect, you have two options: Have a qualified electrician test the motor for function or remove the motor and take it to a qualified electric motor repair shop and have it tested.
	Miswiring of the unit.	Double check to confirm all electrical connections are correct. Refer to appropriate wiring diagrams on pages 40 and 41 to make any needed corrections.
	Switch failure.	If the start/stop switch is suspect, you have two options: Have a qualified electrician test the switch for function, or purchase a new start/stop switch and establish if that was the problem on changeout.
Band Saw does not come up to speed.	Extension cord too light or too long.	Replace with adequate size and length cord.
	Low current.	Contact a qualified electrician.

Troubleshooting – Welded Blade Inspection

Trouble	Probable Cause	Remedy
Weld is misaligned.	Dirt or scale on clamp jaws or blade.	Always keep jaws clean. Clean blade before welding.
	Blade ends not square.	Before welding, grind cut edges of the blade until they are square. Use the shear on the band saw for square cuts.
	Blade ends not correctly aligned when clamped in jaws.	Align the ends properly before clamping.
	Worn clamp jaws	Replace clamp jaws.
	Clamp jaws not aligned correctly.	Align jaws correctly.
Misaligned weld: Blade ends are overlapped.	Pressure knob is set for wider blade than the one used.	Adjust the pressure knob correctly for particular blade width.
	Blade ends or clamp jaws not aligned correctly.	Make corrections as needed.
Weld breaks when used.	Weld is weak and incomplete; possible “blow holes” (see Figure 19).	Cut and re-weld the blade ends.
	Weld has been ground too thin.	Cut and re-weld the blade ends.
	Weld is not annealed correctly.	Follow annealing instructions on pages 17-18.
Incomplete weld.	Pressure knob not set correctly.	Make appropriate adjustment.
	Improper clamping procedures.	Follow instructions on pages 16 through 19.
	Limit switch (#1, page 39) not adjusted correctly.	Adjust limit switch correctly.
	Defective limit switch; doesn’t break circuit at end of welding operation.	Replace limit switch.
	Clamp jaw movement obstructed by kinked jaw cable or tangled wires.	Bend cable and/or untangle wires.
Brittle weld.	Incorrect annealing heat.	Bring weld up to correct color (see page 18).
	Scale or oil on weld caused poor annealing.	Keep clamp jaws and blade clean.

Troubleshooting – Welder Mechanical Problems

Trouble	Probable Cause	Remedy
Weld could not be made. Jaws do not move.	Wire connection is poor; connecting point of welding switch is bad.	Change switch, or grind the connecting port with a file.
	Transformer burnt out.	Change transformer, or re-wire it.
	Blade has oil on it.	Wipe off oil.
	Blade ends have rust on them.	Grind off the rust.
Weld area melts when weld switch is pushed.	Welding switch is cutting off too late.	Screw the welding switch connecting nut tighter.
	Welding press is too weak.	Rotate the pressure selector knob accordingly.
	Jaw movement is too slow.	Put some oil on the rear side of the welding lever and the two jaws.
Blade can not be tightly clamped with the clamp jaws.	Clamp jaws are out of order, or decayed.	Replace clamp jaws.
	Lower jaw inserts are out of order.	Replace lower jaw inserts.
Annealing doesn't occur when the annealing button is pushed.	Annealing switch connection is poor.	Change the annealing switch.
	Fuse is blown.	Replace fuse.
Annealing button will not return to correct position after it is released.	Annealing button has dust or debris around it.	Remove the annealing button housing and clean out any dust or debris.
Grinder will not run when the Grinder switch is pushed.	Grinder motor is burnt out.	Change grinder motor or re-wire it.
	Grinder switch is bad.	Replace grinder switch.

Replacement Parts

Replacement parts are listed on the following pages. To order parts or reach our service department, call 1-800-274-6848 between 7:30 a.m. and 6:00 p.m. (CST), Monday through Friday. Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately.

Parts List: Band Saw Assembly (8014FW only)

(refer to breakdown on page 35)

Index No.	Part No.	Description	Size	Qty
1	VBS1408-1010	Work Table		1
2	VBS14-102	Table Support Frame		1
3	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	2
4	TS-1551071	Lock Washer	5mm	2
5	8014FW-15	Rivet	2mm	4
6	1030	Table Bracket, Right		1
7	TS-0060091	Hex Cap Screw	3/8-16 x 2"	2
8	TS-0720091	Lock Washer	3/8"	2
9	TS-0680042	Flat Washer	3/8"	2
10	1040	Table Bracket, Left		1
11	TS-0060091	Hex Cap Screw	3/8-16 x 2"	2
12	TS-0720091	Lock Washer	3/8"	2
13	TS-0680042	Flat Washer	3/8"	2
14	TS-0680061	Washer	1/2"	2
15	TS-0211111	Socket Head Cap Screw	1/2-13 x 2 1/2"	2
16	1070	Tube Screw		4
17	TS-0209091	Socket Head Cap Screw	3/8-16 x 2"	4
18	1090	Table Support Housing		1
19	TS-0209061	Socket Head Cap Screw	3/8-16 x 1 1/4"	3
20	TS-0680042	Flat Washer	3/8"	3
21	TS-0720091	Lock Washer	3/8"	3
22	TS-0570031	Hex Nut	3/8-16	3
23	1100	Guide Support Housing		1
25	TS-0720081	Lock Washer	5/16"	2
26	TS-0680031	Flat Washer	5/16"	2
27	VBS16-155	Rip Fence		1
28	8014FW-128	Tilt Indicator (Left & Right)		1
29	8771	Tilt Indicator (Forward & Back)		1
30	9700	Indicator Needle		2
31	8014FW-131	Upper Blade Guide Support		1
32	8014FW-132	Lower Blade Guide Support		1
33	VBS1220A-132	Blade Guide		4
34	TS-1503061	Socket Head Cap Screw	6 x 25mm	4
35	TS-1551041	Lock Washer	6mm	4
36	TS-1550041	Flat Washer	6mm	4
37	8014FW-137	Long Blade Stopper		1
38	8014FW-138	Short Blade Stopper		1
39	1350	Blade Guide Post		1
40	TS-1502041	Socket Head Cap Screw	5 x 16mm	2
41	1360	Guide Post Housing		1
42	TS-1524031	Socket Set Screw	8 x 12mm	4
43	TS-0208071	Socket Head Cap Screw	5/16-18 x 1 1/4"	4
44	TS-0720081	Lock Washer	5/16"	4
45	TS-0680031	Flat Washer	5/16"	4
46	1361	Guide Post Spring		1
47	TS-081C022	Flat Head Screw	#10-24 X 3/8"	4
48	1370	Left Blade Guard		1
49	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	2
50	TS-1551031	Lock Washer	5mm	2
51	TS-1550031	Flat Washer	5mm	2
52	1380	Right Blade Guard		1
53	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	2
54	TS-1551031	Lock Washer	5mm	2
55	TS-1550031	Flat Washer	5mm	2
56	1390	Post Holding Pin		1

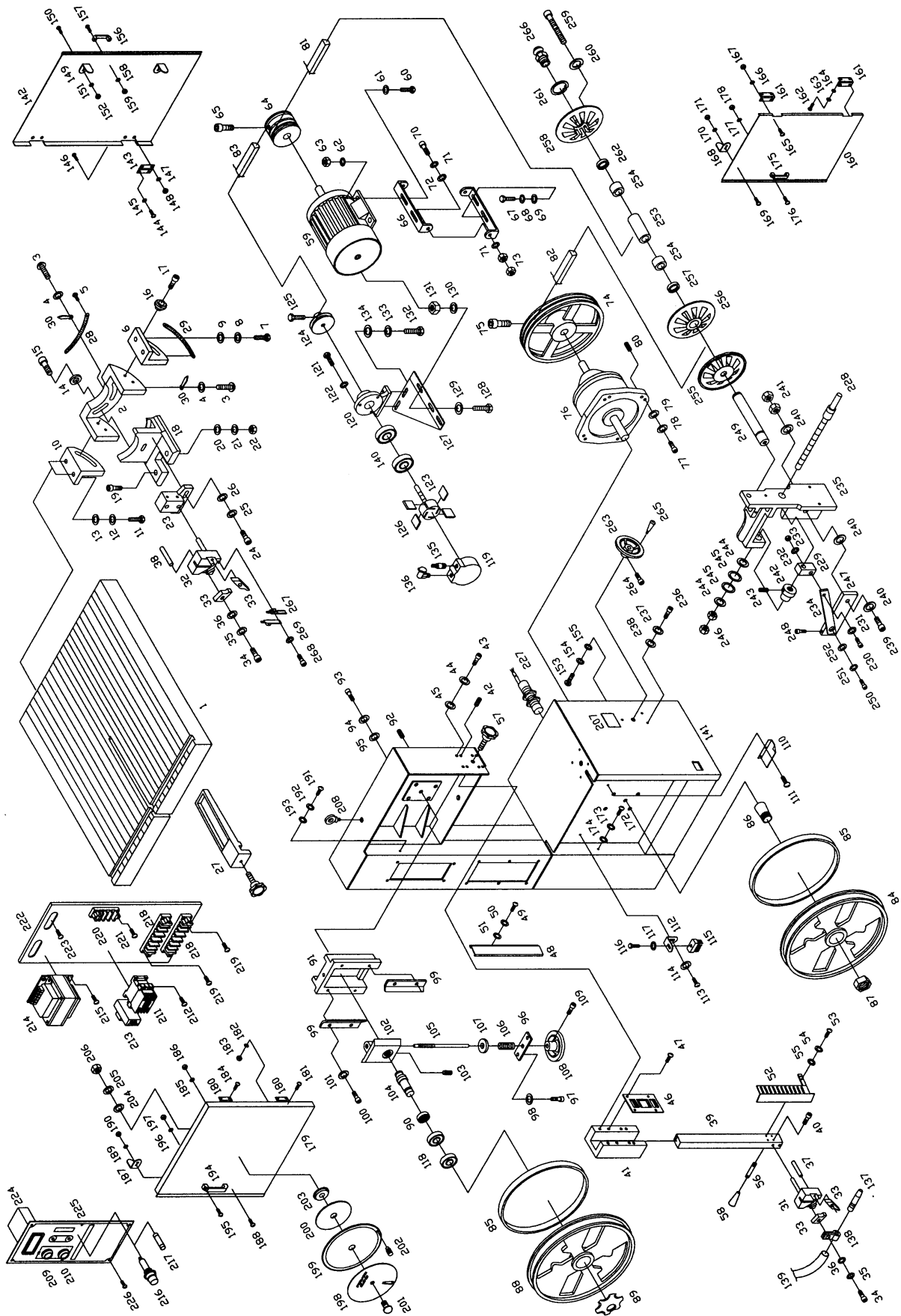
57	9015	Guide Post Locker	1
58	9210	Handle Knob	1
59	VBS1610-2000	Main Drive Motor	1
60	TS-0051051	Hex Cap Screw	5/16-18 x 1" 2
61	TS-0680031	Flat Washer	5/16" 2
62	TS-0720081	Lock Washer	5/16" 2
63	TS-0570021	Hex Nut	5/16-18 2
64	VBS1610-2010	Motor Pulley	1
65	TS-0207071	Socket Head Cap Screw	1/4 x 1 1/4" 1
66	2020	Motor Suspension Arm	2
67	TS-0051031	Hex Cap Screw	5/16-18 x 3/4" 2
68	TS-0720081	Lock Washer	5/16" 2
69	TS-0680031	Flat Washer	5/16" 2
70	TS-0209061	Socket Head Cap Screw	3/8-16 x 1 1/4" 2
71	TS-0720091	Lock Washer	3/8" 4
72	TS-0680042	Flat Washer	3/8" 2
73	TS-0570031	Hex Nut	3/8-16 4
74	2130	Reducer Pulley	1
75	TS-0209051	Socket Head Cap Screw	3/8-16 x 1" 1
76	VBS1408-2300	Main Gear Box (Speed Reducer)	1
77	TS-0209051	Socket Head Cap Screw	3/8-16 x 1" 4
78	TS-0720091	Lock Washer	3/8" 4
79	TS-0680042	Flat Washer	3/8" 4
80	TS-0271071	Socket Set Screw	3/8-16 x 3/4" 4
81	8014FW-181	V-Belt, Variator + 2010	1
82	8014FW-182	V-Belt, Variator + 2130	1
83	8014FW-183	V-Belt, 2010 + 4040	1
84	VBS1408-3010	Lower Wheel	1
85	VBS14-302	Rubber Tire	2
86	VBS1408-3030	Taper Sleeve	1
87	VBS1408-3040	Wheel Locking Nut	1
88	VBS1408-3050	Upper Wheel	1
89	8014FW-189	Upper Wheel Locker	1
90	8014FW-190	Upper Wheel Nut	1
91	8014FW-191	Slide Block Housing	1
92	TS-1524031	Socket Set Screw	8 x 12mm 4
93	TS-0208061	Socket Head Cap Screw	5/16-18 x 1 4
94	TS-0720081	Lock Washer	5/16" 4
95	TS-0680031	Flat Washer	5/16" 4
96	8014FW-196	Slide Block Seat	1
97	TS-0208041	Socket Head Cap Screw	5/16-18 x 3/4" 2
98	TS-0720081	Lock Washer	5/16" 2
99	8014FW-199	Slide Block Guides	2
100	TS-0208061	Socket Head Cap Screw	5/16-18 x1 4
101	TS-0720081	Lock Washer	5/16" 4
102	3111	Upper Wheel Slider	1
103	TS-0270031	Socket Set Screw	5/16-18 x 3/8" 1
104	8014FW-1104	Slider Screw Shaft	1
105	VBS1408-3120	Wheel Elevating Shaft	1
106	VBS1408-3121	Spring	1
107	3150	Washer	1
108	9030	Handwheel	1
109	TS-0208031	Socket Head Cap Screw	5/16-18 x 5/8" 1
110	9600	Chip Stopper	1
111	8014FW-1111	Pan Head Bolt	8 x 12mm 2
112	9780	Brusher Bracket	1
113	8014FW-1113	Pan Head Bolt	8 x 12mm 1
114	TS-1551061	Lock Washer	8mm 1
115	9790	Chip Brusher	1
116	TS-0050031	Hex Cap Screw	1/4-20 x 3/4" 1

117	TS-0680021	Flat Washer	1/4"	1
118	8014FW-1118	Ball Bearing		2
119	8014FW-1119	Air Pump Housing		1
120	8014FW-1120	Air Pump Cover		1
121	TS-0050051	Hex Cap Screw	1/4-20 x 1"	3
122	TS-0720071	Lock Washer	1/4"	3
123	8014FW-1123	Air Pump Shaft		1
124	4040	Air Pump Pulley		1
125	TS-0050011	Hex Cap Screw	1/4-20 x 1/2"	1
126	4050	Air Pump Leaf		4
127	8014FW-1127	Air Pump Suspend Arm		1
128	TS-0051051	Hex Cap Screw	5/16-18 x 1"	2
129	TS-0680031	Flat Washer	5/16"	2
130	TS-0720081	Lock Washer	5/16"	2
131	TS-0561021	Hex Nut	5/16-18	2
132	TS-0051031	Hex Cap Screw	5/16-18 x 3/4"	2
133	TS-0720081	Lock Washer	5/16"	2
134	TS-0680031	Flat Washer	5/16"	2
135	8014FW-1135	Air Outlet		1
136	8014FW-1136	Air Inlet		1
137	4170	Air Nozzle		1
138	4180	Air Nozzle Clipper		1
139	4190	Air Tube		1
140	8014FW-1140	Ball Bearing		2
141	VBS1408-5000	Main Body		1
142	VBS1408-5100	Rear Door		1
143	9310	Upper Door Hinge		2
144	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	4
145	TS-1551031	Lock Washer	5mm	4
146	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	4
147	TS-1551031	Lock Washer	5mm	4
148	TS-1540031	Hex Nut	5mm	4
149	9500	Spring Plate		2
150	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	4
151	TS-1551031	Lock Washer	5mm	4
152	TS-1540031	Hex Nut	5mm	4
153	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	2
154	TS-1551031	Lock Washer	5mm	2
155	TS-1550031	Flat Washer	5mm	2
156	9590	Handle Arms		1
157	TS-1534052	Phillips Pan Head Machine Screw	6 x 16mm	2
158	TS-1551041	Lock Washer	6mm	2
159	TS-1540041	Hex Nut	6mm	2
160	VBS1408-5120	Lower Door		1
161	9310	Upper Door Hinge		2
162	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
163	TS-1551031	Lock Washer	5mm	4
164	TS-1550031	Flat Washer	5mm	4
165	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	4
166	TS-1551031	Lock Washer	5mm	4
167	TS-1540031	Hex Nut	5mm	4
168	9500	Spring Plate		1
169	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	2
170	TS-1551031	Lock Washer	5mm	2
171	TS-1540031	Hex Nut	5mm	2
172	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	1
173	TS-1551031	Lock Washer	5mm	1
174	TS-1550031	Flat Washer	5mm	1
175	9590	Handle Arms		1
176	TS-1534052	Phillips Pan Head Machine Screw	6 x 16mm	2

177	TS-1551041	Lock Washer	6mm	2
178	TS-1540041	Hex Nut	6mm	2
179	VBS1408-5140	Upper Door		1
180	9300	Upper Door Hinge		2
181	TS-1533052	Phillips Pan Head Machine Screw	5 x 16mm	4
182	TS-1551031	Lock Washer	5mm	4
183	TS-1540031	Hex Nut	5mm	4
184	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
185	TS-1551031	Lock Washer	5mm	4
186	TS-1540031	Hex Nut	5mm	4
187	9500	Spring Plate		1
188	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	2
189	TS-1551031	Lock Washer	5mm	2
190	TS-1540031	Hex Nut	5mm	2
191	TS-1534041	Phillips Pan Head Machine Screw	5 x 10mm	1
192	TS-1551031	Lock Washer	5mm	1
193	TS-1550031	Flat Washer	5mm	1
194	9590	Handle Arms		1
195	TS-1534052	Phillips Pan Head Machine Screw	6 x 16mm	2
196	TS-1551041	Lock Washer	6mm	2
197	TS-1540041	Hex Nut	6mm	2
198	8014FW-1198	Speed and Pitch Selector (1)		1
199	8014FW-1199	Speed and Pitch Selector (2)		1
200	8014FW-1200	Speed and Pitch Selector (3)		1
201	8014FW-1201	Brass Bolt		1
202	8014FW-1202	Brass Handle		1
203	8014FW-1203	Selector Bushing		1
204	TS-1550011	Flat Washer	3mm	1
205	8014FW-1205	Lock Washer	3mm	1
206	TS-1540011	Hex Nut	3mm	1
207	8092	Gear Box Instruction		1
208	9999	Eye Bolt		1
209	6600	Pushbutton, ON		1
210	6602	Pushbutton, OFF		1
211	6710	Contactora		1
212	TS-1532052	Phillips Pan Head Machine Screw	4 x 16mm	2
213	6720	Contactora		1
214	6745	Voltage Reducer		1
215	TS-1532032	Phillips Pan Head Machine Screw	4 x 10mm	4
216	8014FW-1216	Fuse Holder		3
217	8014FW-1217	Fuse		1
218	6770	Wire Housing		3
219	TS-1532052	Phillips Pan Head Machine Screw	4 x 16mm	2
220	8014FW-1220	Ground Seat		1
221	TS-1532042	Phillips Pan Head Machine Screw	4 x 12mm	2
222	6799	Wiring Plate		1
223	TS-081C042	Phillips Pan Head Machine Screw	#10-24 x 5/8"	4
224	8014FW-1224	Digital Tachometer		1
225	8014FW-1225	Name Plate		1
226	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	6
227	8014FW-1227	Speed Readout Detector		1
228	VBS16-7400	Speed Changing Shaft		1
229	VBS16-7410	Speed Block		1
230	TS-0209081	Socket Head Cap Screw	3/8-16 x 1 3/4"	1
231	TS-0680042	Flat Washer	3/8"	1
232	TS-0720091	Lock Washer	3/8"	1
233	TS-0570031	Hex Nut	3/8-16	1
234	VBS16-7430	Gear Shaft Arm		1
235	VBS16-7450	Speed Shaft Housing		1
236	TS-1503041	Socket Head Cap Screw	6 x 16mm	3

237	TS-1551041	Lock Washer	6mm	3
238	TS-1550041	Flat Washer	6mm	3
239	TS-0211101	Socket Head Cap Screw	1/2-13 x 2¼"	1
240	TS-0680061	Flat Washer	1/2"	3
241	TS-0561051	Hex Nut	1/2-13	2
242	VBS16-7451	Washer Tube		1
243	TS-0270131	Socket Head Cap Screw	5/16-18 x 2"	1
244	TS-0680061	Flat Washer	1/2"	2
245	8014FW-1245	Wavy Washer	1/2"	2
246	TS-0561051	Hex Nut	1/2-13	2
247	VBS16-7460	Pulley Shaft Arm		1
248	TS-0270131	Socket Set Screw	5/16-18 x 2"	1
249	7470	Variable Pulley Shaft		1
250	TS-0208021	Socket Head Cap Screw	5/16-18 x 1/2"	1
251	TS-0720091	Lock Washer	3/8"	1
252	TS-0680042	Flat Washer	3/8"	1
253	VBS1610-7490	Pulley Shaft Housing		1
254	8014FW-1254	Needle Bearing		2
255	VBS16-7500	Inner Pulley		1
256	VBS16-7510	Middle Pulley		1
257	8014FW-1257	Oil Seal	Φ26xΦ19x5mm	1
258	VBS16-7520	Outer Pulley		1
259	TS-2236911	Socket Head Cap Screw	M6x100	3
260	TS-1551041	Lock Washer	6mm	3
261	8014FW-1261	Retaining Ring	19mm	1
262	8014FW-1262	Oil Seal	Φ26xΦ19x5mm	1
263	9030	Handwheel		1
264	TS-0208031	Socket Head Cap Screw	5/16-18 x 5/8"	1
265	9230	Handwheel Knob		1
266	9995	Grease Nozzle		1
267	1080	Blade Guard		2
268	TS-1503021	Socket Head Cap Screw	6 x 10mm	2
269	TS-1551041	Lock Washer	6 mm	2

Band Saw Assembly (8014FW only)



Parts List: Welder, Shear and Work Lamp Assemblies (8014FW only)

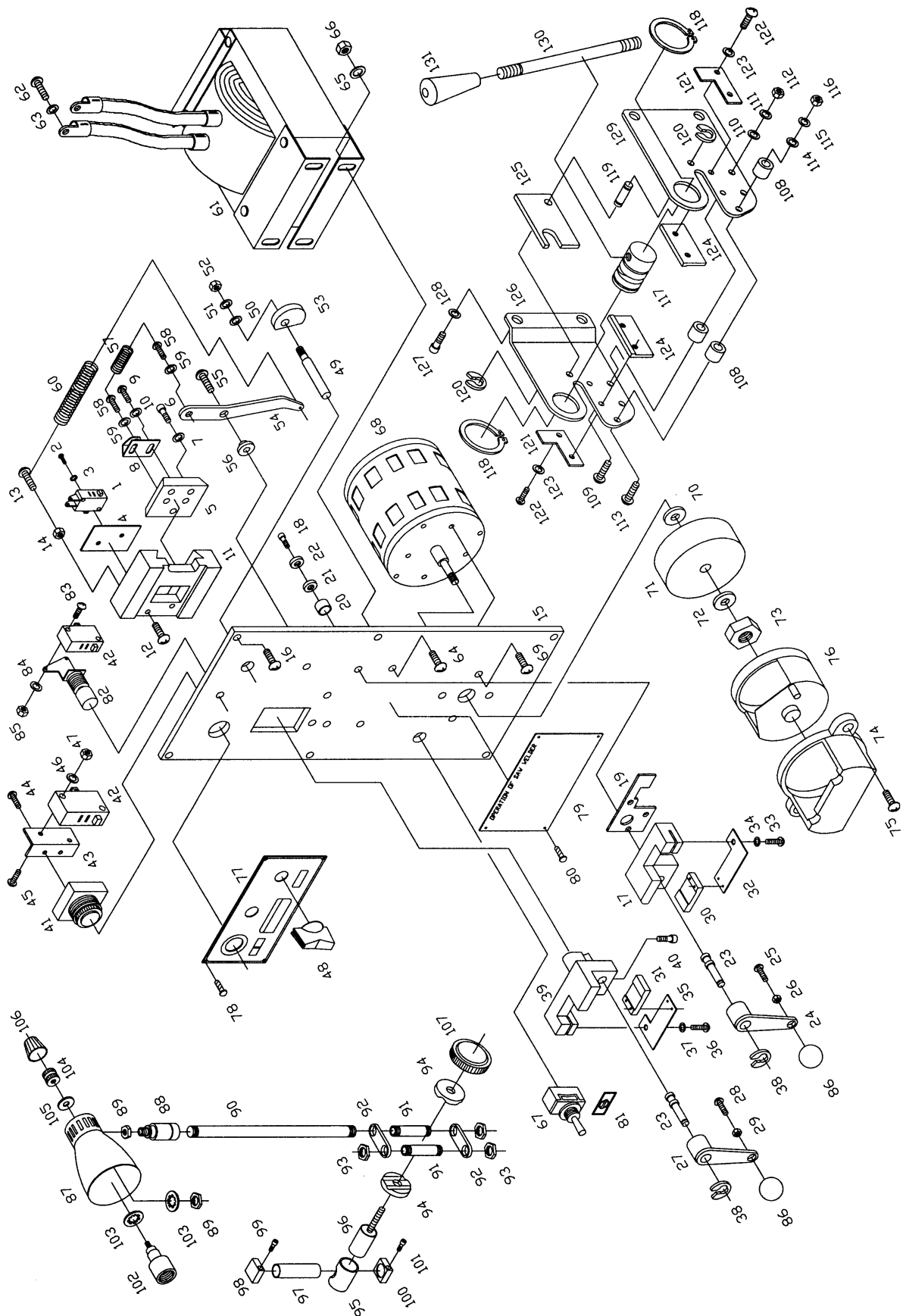
(refer to breakdown on page 39)

Index No.	Part No.	Description	Size	Qty
2	8014FW-22	Pan Head Bolt	#5 x 5/8"	2
3	8014FW-23	Lock Washer	#5	2
4	PR-EV-6011	Insulator		1
5	PR-EV-6020	Guide Block		1
6	TS-1502061	Socket Head Cap Screw	5 x 25mm	2
7	TS-1551031	Lock Washer	5mm	2
8	PR-EV-6021	Spring Bracket		1
9	8014FW-29	Pan Head Bolt	5 x 6mm	2
10	TS-1551031	Lock Washer	5mm	2
11	PR-EV-6030	Guide Casting		1
12	TS-1534041	Flat Head Phillips Machine Screw	5 x 10mm	4
13	8014FW-213	Pan Head Bolt	5 x 25mm	1
14	TS-1540031	Hex Nut	5mm	1
15	PR-EV-6040	Housing		1
16	TS-1533052	Phillips Pan Head Machine Screw	5 x 16mm	6
17	PR-EV-6050	Stationary Jaw		1
18	TS-1502051	Socket Head Cap Screw	5 x 20mm	3
19	PR-EV-6051	Insulator		1
20	PR-EV-6052	Insulating Tube		3
21	PR-EV-6053	Insulate Washer		3
22	PR-EV-6054	Spacer		3
23	PR-EV-6060	Eccentric Shaft		2
24	PR-EV-6070	Right Clamp Lever		1
25	8014FW-225	Pan Head Bolt	5/16 x 3/4"	2
26	TS-0570021	Hex Nut	5/16-18	2
27	PR-EV-6071	Left Clamp Lever		1
28	8014FW-228	Pan Head Bolt	5/16 x 3/4"	2
29	TS-0570021	Hex Nut	5/16-18	2
30	PR-EV-6100	Right Clamp Support		1
31	PR-EV-6101	Left Clamp Support		1
32	PR-EV-6110	Right Clamp Plate		1
33	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	1
34	TS-1551031	Lock Washer	5mm	1
35	PR-EV-6111	Left Clamp Plate		1
36	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	1
37	TS-1551031	Lock Washer	5mm	1
38	PR-EV-6120	Cam		2
39	PR-EV-6130	Moving Jaw		1
40	TS-1502031	Socket Head Cap Screw	5 x 12mm	2
41	PR-EV-6150	Weld Button		1
42	6160	Micro Switch		2
43	PR-EV-6161	Switch Bracket		1
44	TS-1531022	Phillips Pan Head Machine Screw	3 x 8mm	2
45	8014FW-245	Pan Head Bolt	3 x 15mm	2
46	TS-1550011	Flat Washer	3mm	2
47	TS-1540011	Hex Nut	3mm	2
48	PR-EV-6170	Pressure Adjust Knob		1
49	PR-EV-6180	Shaft		1
50	TS-0680021	Flat Washer	1/4"	1
51	TS-0720071	Lock Washer	1/4"	1
52	TS-0570011	Hex Nut	1/4-20	1
53	PR-EV-6200	Cam		1
54	PR-EV-6210	Weld Tension Arm		1
55	TS-081F052	Phillips Pan Head Machine Screw	1/4-20 x 3/4	1
56	PR-EV-6211	Bushing		1

57	PR-EV-6220	Short Spring		1
58	8014FW-258	Pan Head Bolt	5 x 6mm	2
59	TS-1551031	Lock Washer	5mm	2
60	PR-EV-6230	Spring, Long		1
61	PR-EV-6240	Transformer		1
62	8014FW-262	Copper Pan Head Bolt	3/16 x 3/8"	2
63	TS-0720051	Lock Washer	#10	2
64	TS-1533042	Phillips Pan Head Machine Screw	5 x 12mm	4
65	TS-1550031	Flat Washer	5mm	4
66	TS-1540031	Hex Nut	5mm	4
67	PR-EV-6250	Switch		1
68	PR-EV-6260	Grinder Motor		1
69	TS-1534041	Phillips Flat Head Machine Screw	5 x 10mm	4
70	PR-EV-6270	Spacer		1
71	PR-EV-6280	Grinder Wheel		1
72	8014FW-272	Flat Washer		1
73	8014FW-273	Hex Nut		1
74	PR-EV-6290	Grinder Guard		1
75	TS-1534041	Phillips Flat Head Machine Screw	5 x 10mm	2
76	PR-EV-6291	Grinder Cover		1
77	PR-EV-6330	Welder Name Plate		1
78	8014FW-278	Rivet	2mm	4
79	PR-EV-6340	Instruction Label		1
80	8014FW-280	Rivet	2mm	4
81	PR-EV-6350	Grinder Label		1
82	8014FW-282	Anneal Button		1
83	8014FW-283	Pan Head Bolt	3 x 15mm	2
84	TS-1550011	Flat Washer	3mm	2
85	TS-1540011	Hex Nut	3mm	2
86	VBS14-609	Knob		2
87	VBS2012-6810	Light Shield		1
88	VBS2012-6820	Shield Jointer		1
89	VBS2012-6830	Brass Nut		2
90	VBS2012-6840	Lamp Arm		1
91	VBS2012-6860	Arm Tube		2
92	VBS2012-6870	Tube Holder		2
93	VBS2012-6880	Arm Nut		3
94	VBS2012-6890	Tube Locker		2
95	VBS2012-6900	Arm Housing Adjuster		1
96	VBS2012-6910	Housing Adjust Screw		1
97	VBS2012-6920	Lamp Arm Housing		1
98	VBS16-6930	Upper 6920 Holder		1
99	TS-1502081	Socket Head Cap Screw	5 x 35mm	1
100	VBS16-6931	Lower 6920 Holder		1
101	TS-1502081	Socket Head Cap Screw	5 x 35mm	1
102	VBS1610-6950	Lamp Socket		1
103	8014FW-2103	Washer		2
104	8014FW-2104	Nut		1
105	TS-1550071	Flat Washer	10mm	1
106	8014FW-2106	Rotating Button		1
107	VBS2012-9040	Brass Handwheel		1
108	PR-EV-1910	Spindle Bushing		3
109	TS-0207061	Socket Head Cap Screw	1/4-20 x 1"	1
110	TS-0680021	Flat Washer	1/4"	1
111	TS-0720071	Lock Washer	1/4"	1
112	TS-0570011	Hex Nut	1/4-20	1
113	TS-0207081	Socket Head Cap Screw	1/4-20 x 1½"	1
114	TS-0680021	Flat Washer	1/4"	1
115	TS-0720071	Lock Washer	1/4"	1
116	TS-0570011	Hex Nut	1/4-20	1

117	PR-EV-1920	Spindle Lift	1
118	8014FW-2118	Retaining Ring 25mm	2
119	PR-EV-1930	Blade Shaft	1
120	8014FW-2120	Retaining Ring 5mm	2
121	PR-EV-1940	Vaned Iron Plate	2
122	TS-081C022	Phillips Pan Head Machine Screw #10-24 X 3/8"	4
123	TS-0720051	Lock Washer #10	4
124	PR-EV-1950	Lower Blade	2
125	PR-EV-1960	Upper Blade	1
126	PR-EV-1970	Left Joint Plate	1
127	TS-0208031	Socket Head Cap Screw 5/16-18 x 5/8"	2
128	TS-0720081	Lock Washer 5/16"	2
129	PR-EV-1980	Right Joint Plate	1
130	PR-EV-1990	Handle Bar	1
131	PR-EV-9210	Knob	1

Welder, Shear and Work Lamp Assemblies (8014FW only)



Parts List: Band Saw Assembly (8020FW only)

(refer to breakdowns on pages 47-48)

Index No.	Part No.	Description	Size	Qty
1	VBS2012-0500	Gear Box		1
2	TS-0209091	Socket Head Cap Screw	3/8-16 x 2"	4
3	TS-0720091	Lock Washer	3/8"	4
4	TS-0680042	Flat Washer	3/8"	4
5	TS-0271091	Socket Set Screw	3/8-16 x 1"	4
6	8020FW-16	Oil Seal	Φ40xΦ30x7mm	1
7	8020FW-17	Oil Seal	Φ52xΦ30x7mm	1
8	VBS2012-0510	Gear Box Cover		1
9	TS-0050011	Hex Cap Screw	1/4-20 x 1 1/2"	4
10	TS-0720071	Lock Washer	1/4"	4
11	TS-0680021	Flat Washer	1/4"	4
12	VBS2012-0520	Gear		1
13	VBS2012-0530	Screw Nut		1
14	VBS2012-0540	Gear		1
15	VBS2012-0550	Gear Shaft		1
16	8020FW-116	Key	1/4 x 5/8"	2
17	VBS2012-0560	Shaft Cover		1
18	TS-0207121	Socket Head Cap Screw	1/4-20 x 2 1/2"	3
19	VBS2012-0570	Gear		1
20	VBS2012-0581	Main Shaft		1
21	TS-1502071	Socket Head Cap Screw	5 x 30mm	2
22	8020FW-122	Key	10 x 90mm	1
23	VBS2012-0591	Main Shaft Cover		1
24	TS-0207021	Socket Head Cap Screw	1/4-20 x 1 1/2"	3
25	VBS2012-0600	Speed Changing Shaft		1
26	VBS2012-0610	Speed Changing Arm		1
27	TS-0207041	Socket Head Cap Screw	1/4-20 x 3/4"	2
28	TS-0561011	Hex Nut	1/4-20	2
29	VBS2012-0611	Shaft Stop		1
30	TS-0207041	Socket Head Cap Screw	1/4-20 x 3/4"	1
31	TS-0561011	Hex Nut	1/4-20	1
32	TS-0270111	Socket Set Screw	5/16-18 x 1/2"	1
33	VBS2012-0612	Spring		1
34	VBS2012-0620	Slide Block		1
35	VBS2012-0700	Speed Changing Lever		1
36	VBS2012-0740	Shaft Housing		1
37	TS-0209022	Socket Head Cap Screw	3/16-24 x 5/8"	3
38	VBS2012-0790	Speed Lever Ring		1
39	TS-0209031	Socket Head Cap Screw	3/8-16 x 3/4"	1
40	8020FW-140	Pulley		1
41	TS-0209051	Socket Head Cap Screw	3/8-16 x 1"	1
42	8020FW-142	Oil Seal	Φ52xΦ25x7mm	1
43	VBS2012-9220	Speed Lever Knob		1
44	8020FW-144	V-Belt, 7072+7300		2
45	8020FW-145	Ball Bearing		3
46	8020FW-146	Ball Bearing		1
47	8020FW-147	Ball Bearing		1
48	VBS2012-1010	Work Table		1
49	8020FW-149	Table Support Frame		1
50	TS-1533032	Phillips Pan Head Machine Screw	5 x 8mm	2
51	TS-1551031	Lock Washer	5mm	2
52	8020FW-152	Rivet	2mm	4
53	8020FW-153	Right Table Bracket		1
54	TS-0060091	Hex Cap Screw	3/8-16 x 2"	2
55	TS-0720091	Lock Washer	3/8"	2

56	TS-0680042	Flat Washer	3/8"	2
57	8020FW-157	Left Table Bracket		1
58	TS-0060091	Hex Cap Screw	3/8-16 x 2"	2
59	TS-0720091	Lock Washer	3/8"	2
60	TS-0680042	Flat Washer	3/8"	2
61	8020FW-161	Washer		2
62	8020FW-162	Socket Head Cap Screw	1/2-12 x 2 1/2"	2
63	VBS2012-1070	Tube Screw		4
64	TS-0060091	Socket Head Cap Screw	3/8-16 x 2"	4
65	VBS2012-1080	Blade Guard		2
66	TS-1503021	Socket Head Cap Screw	6 x 10mm	2
67	TS-1551041	Lock Washer	6 mm	2
68	8020FW-168	Table Support Housing		1
69	TS-0060061	Socket Head Cap Screw	3/8-16 x 1 1/4"	3
70	TS-0680042	Flat Washer	3/8"	3
71	TS-0720091	Lock Washer	3/8"	3
72	TS-0570031	Hex Nut	3/8-16	3
73	8020FW-173	Guide Support Housing		1
74	TS-0051051	Socket Head Cap Screw	5/16-18 x 1"	2
75	TS-0720081	Lock Washer	5/16"	2
76	TS-0680031	Flat Washer	5/16"	2
77	VBS2012-1550	Rip Fence		1
78	8020FW-178	Tilt Indicator, L&R		1
79	VBS2012-8771	Tilt Indicator, F&B		1
80	VBS2012-9700	Indicator Needle		2
81	8020FW-181	Upper Blade Guide Support		1
82	8020FW-182	Lower Blade Guide Support		1
83	VBS2012-1320	Blade Guide		4
84	TS-1503061	Socket Head Cap Screw	6 x 25mm	4
85	TS-1551041	Lock Washer	6mm	4
86	TS-1550041	Flat Washer	6mm	4
87	8020FW-187	Long Blade Stopper		1
88	8020FW-188	Short Blade Stopper		1
89	VBS2012-1333	Eccentric Shaft		1
90	TS-0720091	Lock Washer	3/8"	1
91	TS-0570031	Hex Nut	3/8-16	1
92	VBS2012-1350	Blade Guide Post		1
93	TS-1503041	Socket Head Cap Screw	6 x 16mm	2
94	VBS2012-1351	Gear Bar		1
95	6710015	Socket Head Cap Screw	3/16-24 x 1/2"	3
96	VBS2012-1360	Guide Post Housing		1
97	TS-1524041	Socket Set Screw	8 x 16mm	4
98	TS-0209061	Socket Head Cap Screw	3/8-16 x 1 1/4"	4
99	TS-0720091	Lock Washer	3/8"	4
100	TS-0680042	Flat Washer	3/8"	4
101	VBS2012-1370	Left Blade Guard		1
102	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	2
103	TS-1551031	Lock Washer	5mm	2
104	TS-1550031	Flat Washer	5mm	2
105	VBS2012-1380	Right Blade Guard		1
106	TS-1503041	Socket Head Cap Screw	6 x 16mm	2
107	TS-1551041	Lock Washer	6mm	2
108	TS-1550041	Flat Washer	6mm	2
109	VBS2012-1400	Spring		2
110	VBS2012-1410	Spring Housing		1
111	TS-0207071	Socket Head Cap Screw	1/4-20 x 1 1/4"	2
112	8020FW-1112	Post Housing Spring		1
113	VBS2012-1450	Post Elevating Gear		1
114	TS-1550071	Flat Washer	10mm	1
115	TS-1540071	Hex Nut	10mm	2

116	VBS2012-9015	Guide Post Lock	1
117	VBS2012-9033	Post Elevating Handwheel	1
118	TS-0270111	Socket Set Screw	5/16-18 x 1/2" 1
119	8020FW-1119	Handle Knob	1
120	VBS2012-G6201	Ball Bearing	1
121	VBS2012-2000	Main Drive Motor	1
122	TS-0051051	Hex Cap Screw	5/16-18 x 1" 4
123	TS-0720081	Lock Washer	5/16" 4
124	TS-0680031	Flat Washer	5/16" 4
125	VBS2012-2010	Motor Pulley	1
126	TS-0208061	Socket Head Cap Screw	5/16-18 x 1 1/4" 1
127	VBS2012-2020	Motor Suspension Arm	2
128	TS-0051021	Hex Cap Screw	5/16-18 x 5/8" 4
129	TS-0720081	Lock Washer	5/16" 4
130	TS-0680031	Flat Washer	5/16" 4
131	8020FW-1131	V-Belt, 2010+7070	2
132	8020FW-1132	V-Belt, 2010+4040	1
133	8020FW-1133	Lower Wheel	1
134	8020FW-1134	Rubber Tire	2
135	VBS2012-3030	Taper Sleeve	1
136	VBS2012-3040	Wheel Lock Nut	1
137	8020FW-1137	Upper Wheel	1
138	VBS2012-3060	Upper Wheel Locker	2
139	VBS2012-3070	Upper Wheel Nut	1
140	VBS2012-3080	Slide Block Housing	1
141	TS-0209051	Socket Head Cap Screw	3/8-16 x 1" 4
142	TS-0720091	Lock Washer	3/8" 4
143	TS-0680042	Flat Washer	3/8" 4
144	VBS2012-3090	Slide Block Seat	1
145	TS-0209051	Socket Head Cap Screw	3/8-16 x 1" 2
146	TS-0720091	Lock Washer	3/8" 2
147	VBS2012-3100	Slide Block Guides	2
148	TS-0209071	Socket Head Cap Screw	3/8-16 x 1 1/2" 4
149	TS-0720091	Lock Washer	3/8" 4
150	VBS2012-3110	Upper Wheel Slider	1
151	TS-0267041	Socket Set Screw	1/4-20 x 3/8" 1
152	VBS2012-3111	Slider Cover	1
153	TS-0267041	Socket Set Screw	1/4-20 x 3/8" 1
154	VBS2012-3112	Slider Screw Shaft	1
155	VBS2012-3113	Slider Pin	1
156	VBS2012-3120	Wheel Elevating Shaft	1
157	VBS2012-3121	Spring	1
158	VBS2012-3150	Washer	1
159	VBS2012-3180	Indicator Ring	3
160	TS-0267041	Socket Set Screw	1/4-20 x 3/8" 2
161	VBS2012-3190	Tension Indicator	1
162	VBS2012-3200	Wheel Tracking Adjuster	1
163	VBS2012-3220	Wheel Tilt Connector	1
164	VBS2012-3240	Connector Washer	1
165	VBS2012-3250	Connector Housing	1
166	TS-1504041	Socket Head Cap Screw	8 x 20mm 3
167	VBS2012-8712	Instructor Plate	1
168	VBS2012-9030	Handwheel	1
169	TS-0208031	Socket Set Screw	5/16-18 x 5/8" 1
170	VBS2012-9060	Tilt Adjust Handwheel	1
171	8020FW-1171	Chip Stop	1
172	8020FW-1172	Pan Head Bolt	8 x 12mm 2
173	VBS2012-9780	Brush Bracket	1
174	8020FW-1174	Pan Head Bolt	8 x 12mm 1
175	TS-1551061	Lock Washer	8mm 1

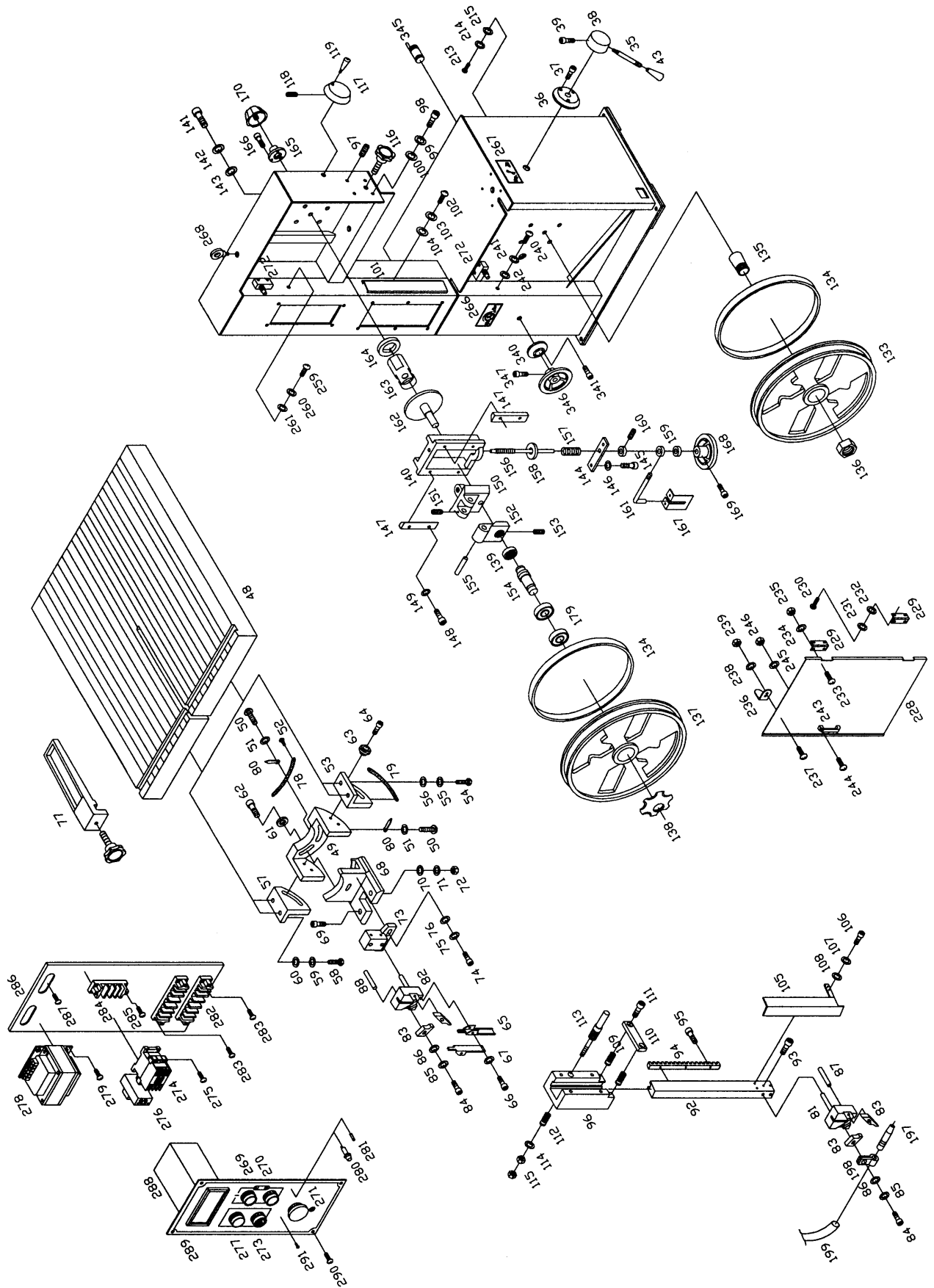
176	VBS2012-9790	Chip Stopper		1
177	TS-0050031	Hex Cap Screw	1/4-20 x 3/4"	1
178	TS-0680021	Flat Washer	1/4"	1
179	8020FW-1179	Ball Bearing		2
180	VBS2012-4010	Air Pump Housing		1
181	VBS2012-4020	Air Pump Cover		1
182	TS-0050051	Hex Cap Screw	1/4-20 x 1"	3
183	TS-0720071	Lock Washer	1/4"	3
184	VBS2012-4030	Air Pump Shaft		1
185	VBS2012-4040	Air Pump Pulley		1
186	TS-0050011	Hex Cap Screw	1/4-20 x 1/2"	1
187	VBS2012-4050	Air Pump Leaf		4
188	8020FW-1188	Air Pump Suspend Arm		2
189	TS-0051021	Hex Cap Screw	5/16-18 x 5/8"	2
190	TS-0720081	Lock Washer	5/16"	2
191	TS-0680031	Flat Washer	5/16"	2
192	TS-0051031	Hex Cap Screw	5/16-18 x 3/4"	2
193	TS-0720081	Lock Washer	5/16"	2
194	TS-0680031	Flat Washer	5/16"	2
195	VBS2012-4140	Air Outlet		1
196	VBS2012-4150	Air Inlet		1
197	VBS2012-4170	Air Nozzle		1
198	VBS2012-4180	Air Nozzle Clip		1
199	8020FW-1199	Air Tube		1
200	VBS2012-G6201	Ball Bearing		2
201	VBS2012-5000	Main Body		1
202	VBS2012-5100	Right Rear Door		1
203	VBS2012-9310	Upper Door Hinge		2
204	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
205	TS-1551031	Lock Washer	5mm	4
206	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
207	TS-1551031	Lock Washer	5mm	4
208	TS-1540031	Hex Nut	5mm	4
209	VBS2012-9500	Spring Plate		2
210	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
211	TS-1551031	Lock Washer	5mm	4
212	TS-1540031	Hex Nut	5mm	4
213	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	2
214	TS-1551031	Lock Washer	5mm	2
215	TS-1540031	Hex Nut	5mm	2
216	VBS2012-9590	Handle		1
217	TS-1534052	Phillips Pan Head Machine Screw	6 x 15mm	2
218	TS-1551041	Lock Washer	6mm	2
219	TS-1540041	Hex Nut	6mm	2
220	VBS2012-5101	Left Rear Door		1
221	VBS2012-9310	Upper Door Hinge		2
222	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
223	TS-1551031	Lock Washer	5mm	4
224	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
225	TS-1551031	Lock Washer	5mm	4
226	TS-1540031	Hex Nut	5mm	4
227	TS-133032	Phillips Pan Head Machine Screw	5 x 8mm	2
228	VBS2012-5120	Lower Door		1
229	VBS2012-9310	Upper Door Hinge		2
230	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
231	TS-1551031	Lock Washer	5mm	4
232	TS-1550031	Flat Washer	5mm	4
233	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
234	TS-1551031	Lock Washer	5mm	4
235	TS-1540031	Hex Nut	5mm	4

236	VBS2012-9500	Spring Plate	2
237	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm 4
238	TS-1551031	Lock Washer	5mm 4
239	TS-1540031	Hex Nut	5mm 4
240	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm 2
241	TS-1551031	Lock Washer	5mm 2
242	TS-1550031	Flat Washer	5mm 2
243	VBS2012-9590	Handle	1
244	TS-1534052	Phillips Pan Head Machine Screw	6 x 15mm 2
245	TS-1551041	Lock Washer	6mm 2
246	TS-1540041	Hex Nut	6mm 2
247	VBS2012-5140	Front Upper Door	1
248	VBS2012-9300	Upper Door Hinge	2
249	TS-1533052	Phillips Pan Head Machine Screw	5 x 15mm 4
250	TS-1551031	Lock Washer	5mm 4
251	TS-1540031	Hex Nut	5mm 4
252	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm 4
253	TS-1551031	Lock Washer	5mm 4
254	TS-1540031	Hex Nut	5mm 4
255	VBS2012-9500	Spring Plate	2
256	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm 4
257	TS-1551031	Lock Washer	5mm 4
258	TS-1540031	Hex Nut	5mm 4
259	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm 2
260	TS-1551031	Lock Washer	5mm 2
261	TS-1540031	Hex Nut	5mm 2
262	VBS2012-9590	Handle	1
263	TS-1534052	Phillips Pan Head Machine Screw	6 x 15mm 2
264	TS-1551041	Lock Washer	6mm 2
265	TS-1540041	Hex Nut	6mm 2
266	VBS2012-8372	Variable Speed Instruction Label	1
267	VBS2012-8422	Gear Box Warning Label	1
268	VBS2012-9999	Eye Bolt	1
269	VBS2012-6600	Pushbutton, ON	1
270	VBS2012-6602	Pushbutton, OFF	1
271	VBS2012-6610	Emergency Switch	1
272	8020FW-1272	Limit Switch	2
273	VBS2012-6650	Key Switch	1
274	VBS2012-6710	Contactora	1
275	TS-1532052	Phillips Pan Head Machine Screw	4 x 15mm 2
276	VBS2012-6720	Starter Overload	1
277	VBS2012-6742	Power On Indicator Light	1
278	VBS2012-6745	Voltage Reducer	1
279	TS-1532032	Phillips Pan Head Machine Screw	4 x 8mm 4
280	VBS2012-6750	Fuse	3
281	8020FW-1281	Fuse	1
282	8020FW-1282	Wire Housing	2
283	TS-1532052	Phillips Pan Head Machine Screw	4 x 15mm 4
284	8020FW-1284	Ground Seat	1
285	TS-1532042	Phillips Pan Head Machine Screw	4 x 12mm 2
286	VBS2012-6799	Wiring Plate	1
287	TS-081C042	Phillips Pan Head Machine Screw	10-24 x 1/2" 4
288	8020FW-1288	Digital Tachometer	1
289	8020FW-1289	Control Plate	1
290	TS-133032	Phillips Pan Head Machine Screw	5 x 8mm 6
291	8020FW-1291	Copper Pan Head Bolt	4 x 10mm 6
292	VBS2012-7000	Motor Spring Housing	1
293	TS-0051061	Hex Cap Screw	5/16-18 x 1 1/4" 4
294	TS-0720081	Lock Washer	5/16" 4
295	TS-0680031	Flat Washer	5/16" 4

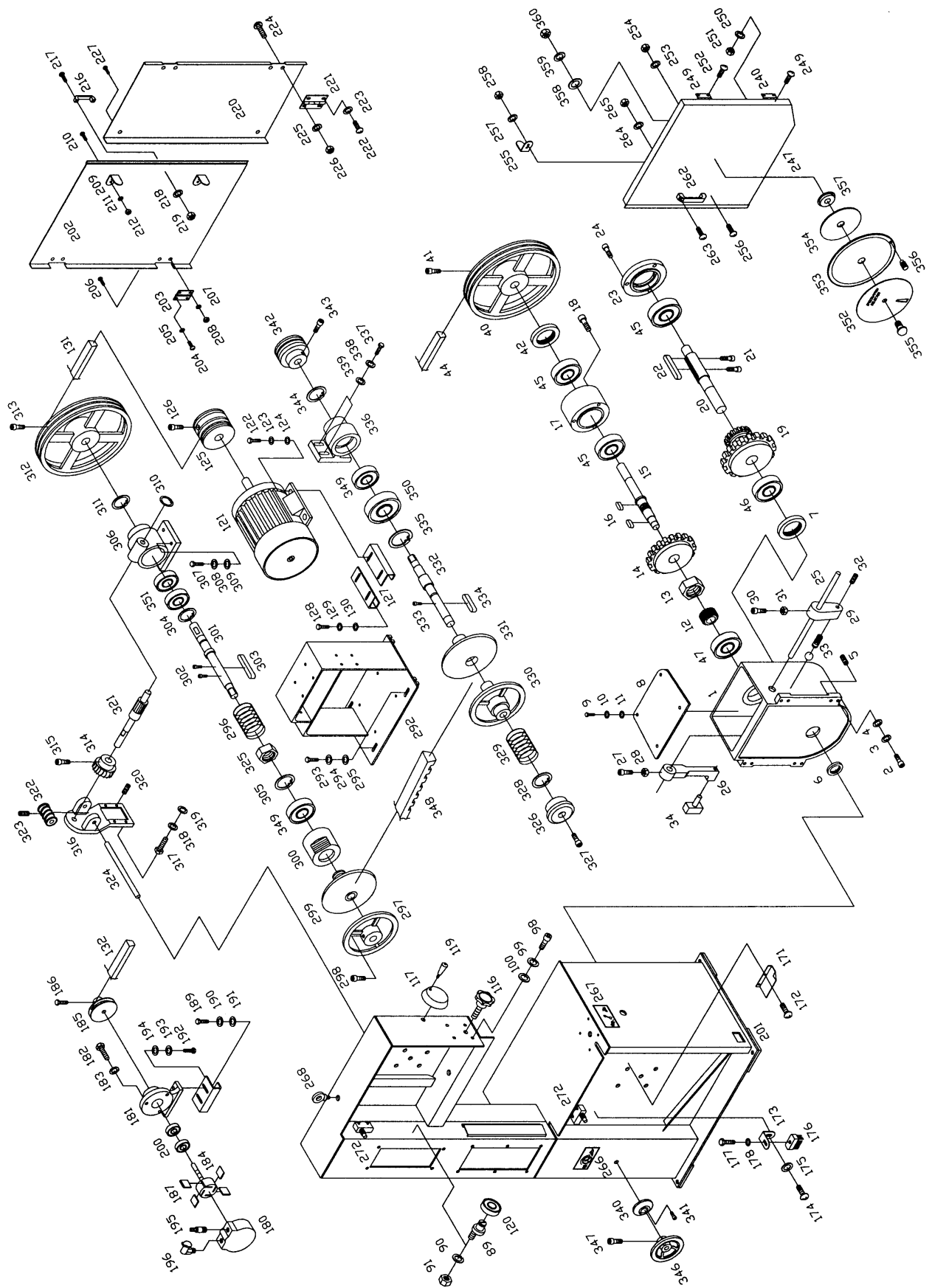
296	VBS2012-7010	Spring	1
297	VBS2012-7020	Variable Speed Disc – Upper Outside	1
298	TS-0208041	Socket Head Cap Screw	5/16-18 x 3/4" 1
299	VBS2012-7030	Variable Speed Disc – Upper Inside	1
300	VBS2012-7040	Variable Speed Housing Tube	1
301	VBS2012-7050	Variable Speed Disc Shaft	1
302	TS-1501051	Socket Head Cap Screw	4 x 16mm 2
303	8020FW-1303	Key	6 x 80mm 1
304	8020FW-1304	Retaining Ring	52mm 1
305	8020FW-1305	Retaining Ring	62mm 1
306	VBS2012-7060	Variable Speed Housing	1
307	TS-0051061	Hex Cap Screw	5/16-18 x 1 1/4" 4
308	TS-0720081	Lock Washer	5/16" 4
309	TS-0680031	Flat Washer	5/16" 4
310	8020FW-1310	Retaining Ring	16mm 1
311	8020FW-1311	Retaining Ring	25mm 1
312	VBS2012-7070	Pulley	1
313	TS-0209051	Socket Head Cap Screw	3/8-16 x 1" 1
314	VBS2012-7080	Worm Gear	1
315	TS-0207031	Socket Head Cap Screw	1/4-20 x 5/8" 1
316	VBS2012-7090	Worm Gear Housing	1
317	TS-0051061	Hex Cap Screw	5/16-18 x 1 1/4" 4
318	TS-0720081	Lock Washer	5/16" 4
319	TS-0680031	Flat Washer	5/16" 4
320	TS-0267061	Socket Set Screw	1/4-20 x 5/8" 4
321	VBS2012-7100	Gear Shaft	1
322	VBS2012-7110	Worm	1
323	TS-0267061	Socket Set Screw	1/4-20 x 5/8" 1
324	VBS2012-7120	Whirling Arm	1
325	VBS2012-7190	Screw Nut	1
326	VBS2012-7200	Spring Housing	1
327	TS-0208041	Socket Set Screw	5/16-18 x 3/4" 1
328	8020FW-1328	Retaining Ring	20mm 1
329	VBS2012-7210	Spring	1
330	VBS2012-7220	Variable Speed Disc – Lower Outside	1
331	VBS2012-7230	Variable Speed Disc – Lower Inside	1
332	VBS2012-7250	Variable Speed Shaft	1
333	TS-1501051	Socket Head Cap Screw	4 x 16mm 1
334	8020FW-1334	Key	6 x 60mm 1
335	8020FW-1335	Retaining Ring	62mm 1
336	VBS2012-7260	Shaft Housing	1
337	TS-0051061	Hex Cap Screw	5/16-18 x 1 1/4" 4
338	TS-0720081	Lock Washer	5/16" 4
339	TS-0680031	Flat Washer	5/16" 4
340	VBS2012-7290	Wheel Seat	1
341	TS-081C042	Socket Head Cap Screw	10-24 x 5/8" 3
342	VBS2012-7300	Pulley	1
343	TS-0208041	Socket Head Cap Screw	5/16-18 x 3/4" 1
344	8020FW-1344	Retaining Ring	20mm 1
345	VBS2012-7310	Speed Readout	1
346	VBS2012-9030	Handwheel	1
347	TS-0208031	Socket Head Cap Screw	5/16-18 x 5/8" 1
348	VBS2012-BV875	V-Belt, 7030+7230	1
349	8020FW-1349	Ball Bearing	2
350	8020FW-1350	Ball Bearing	1
351	8020FW-1351	Ball Bearing	2
352	8020FW-1352	Speed and Pitch Selector (1)	1
353	8020FW-1353	Speed and Pitch Selector (2)	1
354	8020FW-1354	Speed and Pitch Selector (3)	1
355	8020FW-1355	Brass Bolt	1

356	8020FW-1356	Brass Handle	1
357	8020FW-1357	Selector Bushing	1
358	TS-1550011	Flat Washer	3mm 1
359	8020FW-1359	Lock Washer	3mm 1

Band Saw Assembly (8020FW only)



Band Saw Assembly (8020FW only)



Parts List: Welder, Shear and Work Lamp Assemblies (8020FW only)

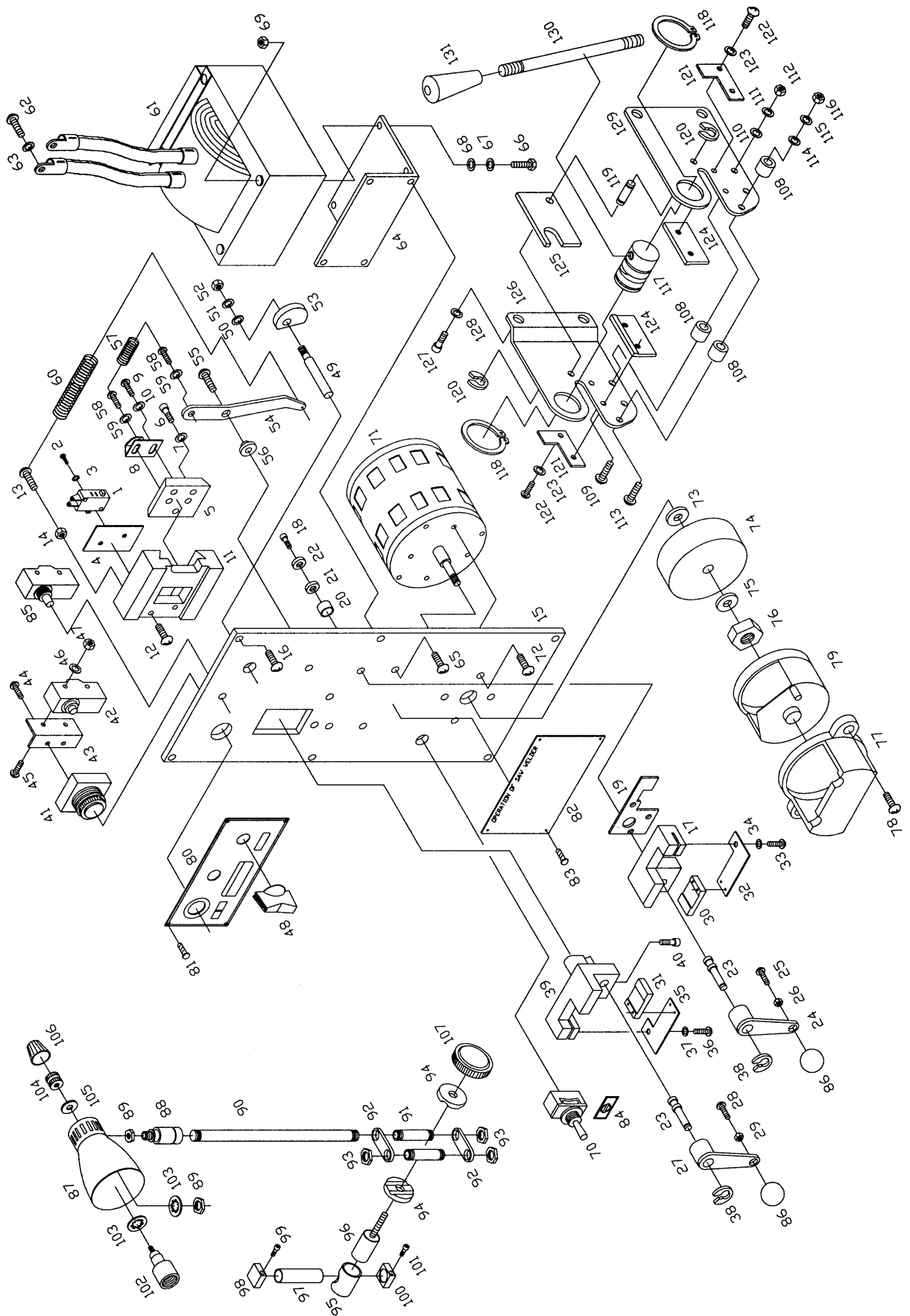
(refer to breakdown on page 52)

Index No.	Part No.	Description	Size	Qty
1	JWG34-601	Limit Switch		1
2	8014FW-22	Phillips Pan Head Machine Screw	#5 x 5/8"	2
3	8014FW-23	Lock Washer	#5	2
4	PR-EV-6011	Insulator		1
5	PR-EV-6020	Guide Block		1
6	TS-1502061	Socket Head Cap Screw	5 x 25mm	2
7	TS-1551031	Lock Washer	5mm	2
8	PR-EV-6021	Spring Bracket		1
9	8014FW-29	Pan Head Bolt	5 x 6mm	2
10	TS-1551031	Lock Washer	5mm	2
11	PR-EV-6030	Guide Casting		1
12	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	4
13	8014FW-213	Pan Head Bolt	5 x 25mm	1
14	TS-1540031	Hex Nut	5mm	1
15	PR-EV-6040	Housing		1
16	TS-1533052	Phillips Pan Head Machine Screw	5 x 16mm	6
17	PR-EV-6050	Stationary Jaw		1
18	TS-1502051	Socket Head Cap Screw	5 x 20mm	3
19	PR-EV-6051	Insulator		1
20	PR-EV-6052	Insulating Tube		3
21	PR-EV-6053	Insulating Washer		3
22	PR-EV-6054	Spacer		3
23	PR-EV-6060	Eccentric Shaft		2
24	PR-EV-6070	Right Clamp Lever		1
25	TS-0208041	Phillips Pan Head Machine Screw	5/16 x 3/4"	2
26	TS-0570021	Hex Nut	5/16-18	2
27	PR-EV-6071	Left Clamp Lever		1
28	TS-0208041	Phillips Pan Head Machine Screw	5/16 x 3/4"	2
29	TS-0570021	Hex Nut	5/16-18	2
30	PR-EV-6100	Right Clamp Support		1
31	PR-EV-6101	Left Clamp Support		1
32	PR-EV-6110	Right Clamp Plate		1
33	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	1
34	TS-1551031	Lock Washer	5mm	1
35	PR-EV-6111	Left Clamp Plate		1
36	TS-1533032	Phillips Pan Head Machine Screw	5 x 10mm	1
37	TS-1551031	Lock Washer	5mm	1
38	PR-EV-6120	Cam		2
39	PR-EV-6130	Moving Jaw		1
40	TS-1502031	Socket Head Cap Screw	5 x 12mm	2
41	JWG34-615	Weld Button		1
60	PR-EV-6230	Long Spring		1
61	VBS1220M-624	Transformer		1
62	8014FW-262	Copper Pan Head Bolt	3/16 x 3/8"	2
63	TS-0720051	Lock Washer	#10	2
64	8020FW-264	Mounting Bracket		4
65	TS-1513021	Socket Head Flat Screw	5 x 12mm	4
66	TS-0050171	Hex Cap Screw	1/4-20 x 4"	4
70	PR-EV-6250	Switch		1
68	TS-0680021	Flat Washer	1/4"	1
69	TS-0561011	Hex Nut	1/4-20	4
73	PR-EV-6270	Spacer		1
71	PR-EV-6260	Grinder Motor		1
72	TS-1513011	Socket Head Flat Screw	5 x 10mm	1
74	PR-EV-6280	Grinder Wheel		1

75	8014FW-272	Spacer	2
76	TS-1540041	Hex Nut	1
77	VBS1220M-629	Grinder Guard	1
78	TS-1513021	Socket Head Flat Screw	5 x 12mm
79	PR-EV-6291	Grinder Cover	1
80	PR-HV-6330	Welder Name Plate	4
81	8014FW-278	Rivet	2mm
82	PR-EV-6340	Instruction Label	1
83	8020FW-283	Rivet	2mm
84	PR-EV-6350	Grinder Label	2
85	PR-HV-6420	Anneal Switch	3mm
86	VBS14-609	Knob	2
87	VBS2012-6810	Light Shield	1
88	VBS2012-6820	Shield Jointer	1
89	VBS2012-6830	Brass Nut	2
90	VBS2012-6840	Lamp Arm	1
91	VBS2012-6860	Arm Tube	2
92	VBS2012-6870	Tube Holder	2
93	VBS2012-6880	Arm Nut	3
94	VBS2012-6890	Tube Locker	2
95	VBS2012-6900	Arm Housing Adjuster	1
96	VBS2012-6910	Housing Adjust Screw	1
97	VBS2012-6920	Lamp Arm Housing	1
98	VBS16-6930	6920 Upper Holder	1
99	TS-1502081	Socket Head Cap Screw	5 x 35mm
100	VBS16-6931	6920 Lower Holder	1
101	TS-1502081	Socket Head Cap Screw	5 x 35mm
102	VBS2012-6950	Lamp Socket	1
103	8014FW-2103	Washer	2
104	8014FW-2104	Nut	1
105	TS-1550071	Flat Washer	10mm
106	8014FW-2106	Rotating Button	1
107	VBS2012-9040	Brass Handwheel	1
108	PR-EV-1910	Spindle Bushing	3
109	TS-0207061	Socket Head Cap Screw	1/4-20 x 1"
110	TS-0680021	Flat Washer	1/4"
111	TS-0720071	Lock Washer	1/4"
112	TS-0561011	Hex Nut	1/4-20
113	TS-0207081	Socket Head Cap Screw	1/4-20 x 1 1/2"
114	TS-0680021	Flat Washer	1/4"
115	TS-0720071	Lock Washer	1/4"
116	TS-0561011	Hex Nut	1/4-20
117	PR-EV-1920	Spindle Lift	1
118	8014FW-2118	Retaining Ring	25mm
119	PR-EV-1930	Blade Shaft	1
120	8014FW-2120	Retaining Ring	5mm
121	PR-EV-1940	Vaned Iron Plate	2
122	TS-081C022	Phillips Pan Head Machine Screw	#10-24 X 3/8"
123	TS-0720051	Lock Washer	#10
124	PR-EV-1950	Lower Blade	2
125	PR-EV-1960	Upper Blade	1
126	PR-EV-1970	Left Joint Plate	1
127	TS-0208031	Socket Head Cap Screw	5/16-18 x 5/8"
128	TS-0720081	Lock Washer	5/16"
129	PR-EV-1980	Right Chain Joint	1
130	PR-EV-1990	Handle Bar	1
131	PR-EV-9210	Knob	1
42	PR-HV-6160	Micro Switch	2
43	PR-EV-6161	Switch Bracket	1
44	TS-1531022	Phillips Pan Head Machine Screw	3 x 8mm
45	8020FW-245	Pan Head Bolt	#8-32 x 1"

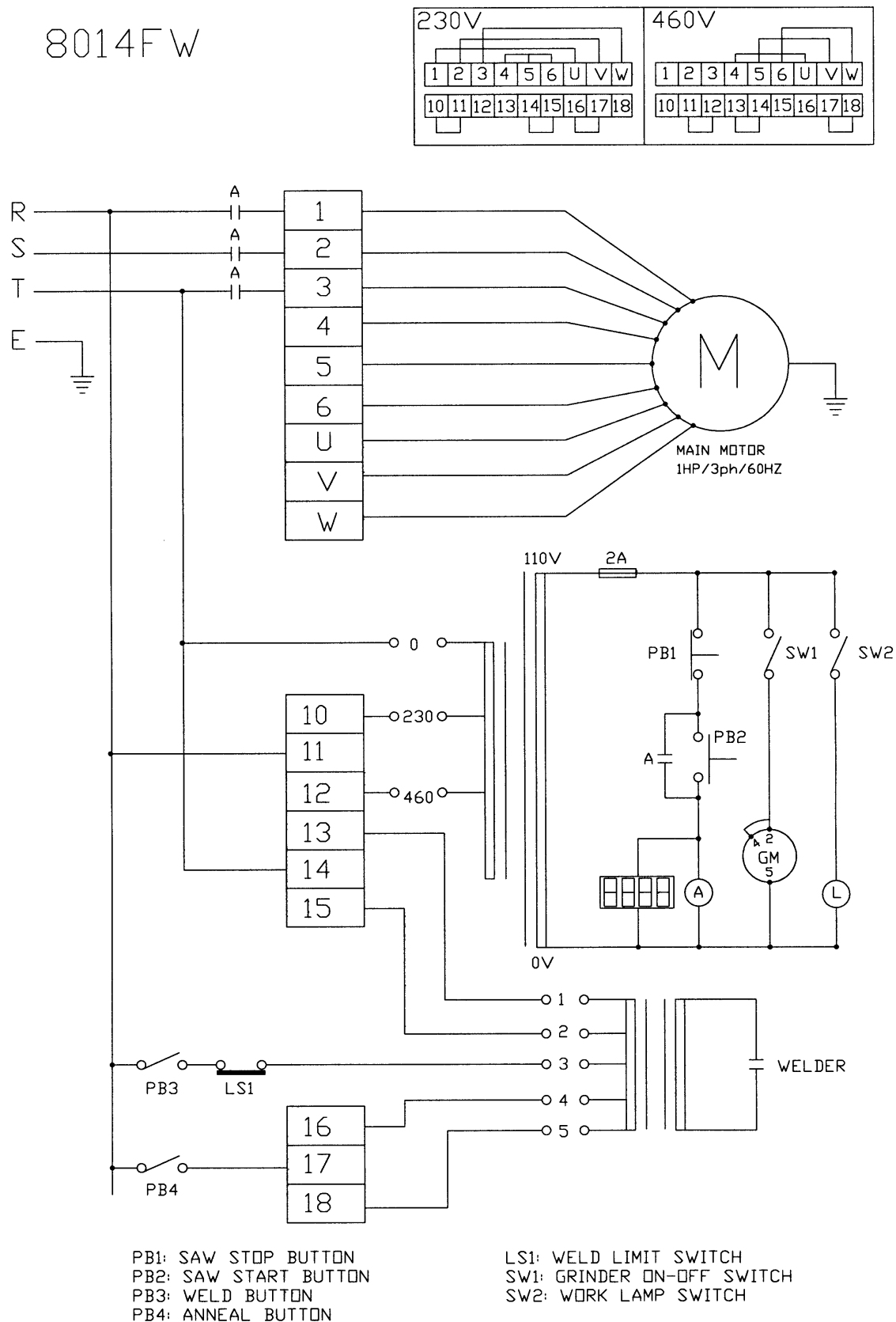
46	TS-1550011	Flat Washer	3mm	2
47	8020FW-247	Hex Nut	#8-32	2
48	PR-EV-6170	Pressure Adjust Knob		1
49	PR-EV-6180	Shaft		1
50	TS-0680021	Flat Washer	1/4"	1
51	TS-0720071	Lock Washer	1/4"	1
52	TS-0570011	Hex Nut	1/4-20	1
53	PR-EV-6200	Cam		1
54	PR-EV-6210	Weld Tension Arm		1
55	TS-081F052	Phillips Pan Head Machine Screw	1/4-20 x 3/4	1
56	PR-EV-6211	Bushing		1
57	PR-EV-6220	Short Spring		1
58	8014FW-258	Phillip Pan Head Machine Screw	5 x 6mm	2
59	TS-1551031	Lock Washer	5mm	2

Welder, Shear and Work Lamp Assemblies (8020FW only)

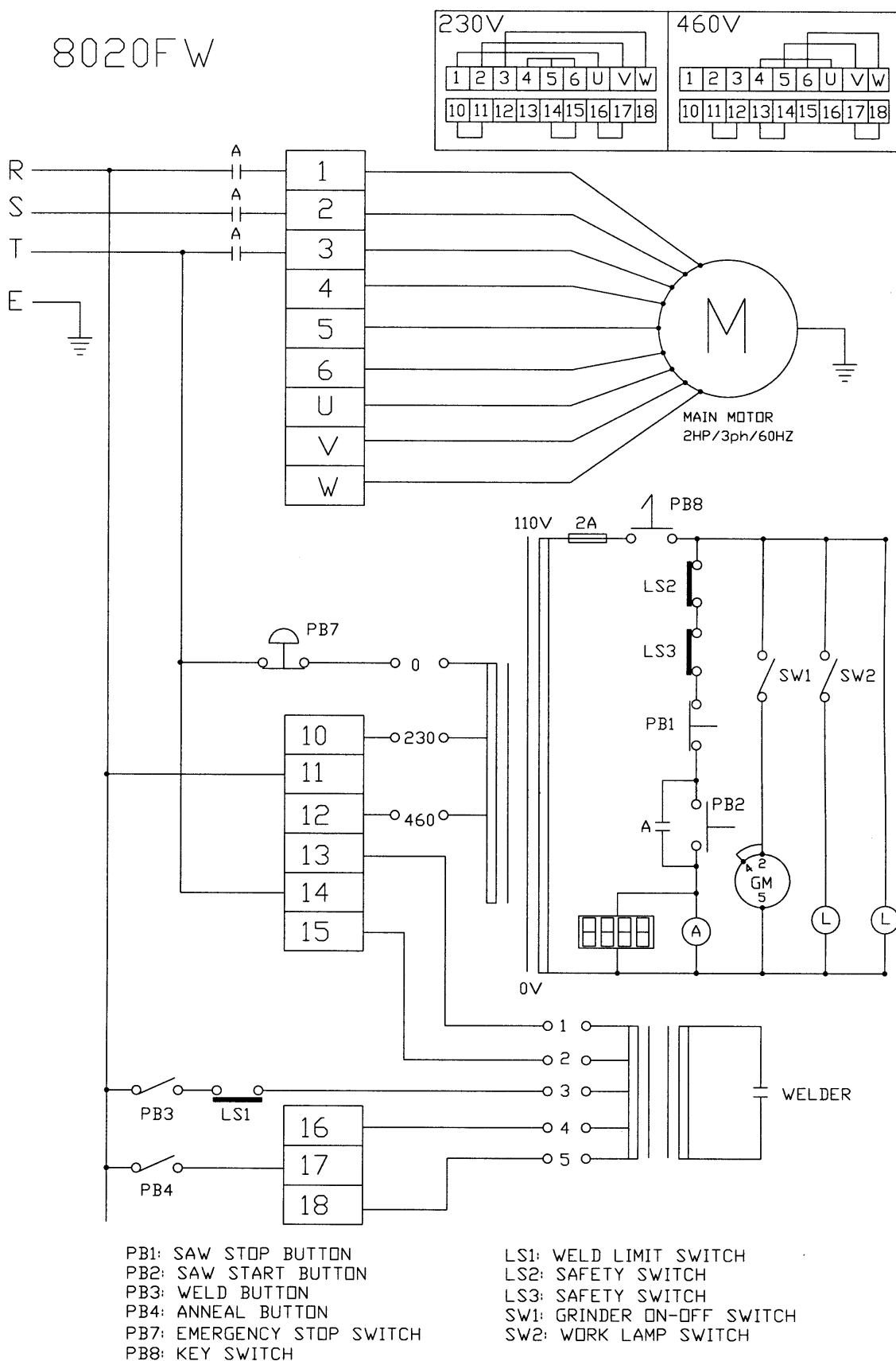


Electrical Connections – Model 8014FW only

8014FW



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